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RC851 ECMA48 DISPLAY TERMINAL  
REFERENCE MANUAL

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**Abstract:**

This manual describes the function of RC851,1208  
DISPLAY TERMINAL as seen from the operator and  
the host computer.

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## FOREWORD

This manual describes the RC851 ECMA48 DISPLAY TERMINAL as seen from the operator and the host computer. The functions of the terminal are based on the standards ECMA48 and ISO/DIS 6429.2, therefore knowledge of these standards will be an advantage when reading this manual.

Appendix B contains a list of facilities which are not included in the actual implementation of the terminal. (Version 1).

The RC851 is based on the RC850 hardware and basic software described in the manuals listed below:

### References:

RCSL No. 31-D672 RC850 Reference Manual

RCSL No. 44-RT2067 CRT505/507 CRT Controller Technical Manual

Draft International Standard ISO/DIS 6429.2

Standard ECMA48

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## 1. TERMINOLOGY

1.

This section gives a summary of some important terms used in this specification.

Active position: The character position where the cursor is currently located.

Area: A set of adjacent character positions in a visual display that are not necessarily on the same line.

Auxiliary device: A device connected to a character-imaging device for the purpose of storing, retrieving, or imaging data.

Character-imaging device: A device that gives a visual representation of data in the form of graphic symbols using any technology, e.g. cathode ray tube or printer.

Character position: That portion of a visual display which is imaging or is capable of imaging a graphic symbol.

Control function: An action that affects the recording, processing, transmission, or interpretation of data.

C0-control character set: Control codes from <00> to <1F>. These are the same in both 7 and 8 bit representation.

C1-control character set: Control codes from <80> to <9F> of the ECMA 8-bit code standard. These are represented as ESC followed by a code from <40> to <5F> in 7 bit representation.

Default: A value or a state that is to be assumed when no value or state is explicitly specified.

Display: Information presented on the screen. A display consists of a series of lines composed of character positions.

ECMA: the European Computer Manufacturers Association.

Field: An area whose boundaries are specified by horizontal tabulation stops.

Final character: A character whose bit combination terminates an escape sequence or a control sequence.

Graphic rendition: A visual style of displaying a set of graphic symbols.

Intermediate character:

1. A character whose bit combination occurs between the character ESCAPE and the final character in an escape sequence consisting of more than two bit combinations.
2. A character, other than a character in a parameter string, whose bit combination occurs between the CONTROL SEQUENCE INTRODUCER and the final character in a control sequence.

Operating system: Software that controls the execution of computer programs and that may provide scheduling, debugging, input/output control, accounting, compilation, storage assignment, data management, and related services.

Private use: A means of representing a non-standardized control function in a manner compatible with the Standard.

Scroll: An action whereby all of the graphic symbols of a visual display are moved in a specified direction.

Tabulation: A technique of identifying character positions in a visual display for the purpose of arranging information systematically.

Tabulation stop: An indication that a character position is to be used for tabulation; a horizontal tabulation stop may also serve as a boundary between fields.

## 2. GENERAL INFORMATION

2.

RC851 is a "smart" terminal conforming to the ECMA standard for additional control codes. Editing may be performed within the page prior to transmission of data to the host computer.

A printer may be attached. The print speed, code parity, code length and number of stop bits are selectable.

The standard transmission protocol is asynchronous transmission on a character-by-character basis. Transmission rate, code length, code parity and the number of stop bits are selectable.

RC851 may display text in several different video modes such as low-intensity, underline, blinking, inverse video or several combinations of these.

Second, third and fourth character sets are available.

The terminal mode is factory preset, and normally all the operator has to do is turn power on by using the POWER ON switch located on the back side of the terminal.

Immediately after power-up, the terminal will perform a self-test to ensure proper operation.

All switches (printer and transmission switches inclusive) are under firmware control, and may be altered by the operator from the keyboard. The terminal will "remember" the switch settings in a so-called non-volatile memory from the last user session, even when power has been turned off. The switches are factory preset to a standard configuration.

Programmable keys (PUSH-keys) are implemented. These are also under firmware control in the same way as the switches, and may be altered by the operator.

### **3. BASIC TERMINAL CONCEPTS**

3.

As previously mentioned, the RC851 is an ECMA-48 compatible terminal. I.e. the terminal responds to control functions according to the ECMA-48 standard.

The definition of control functions in the ECMA-48 standard are based on general assumptions about the architecture of the devices (terminals). These assumptions are described in the ECMA-48 standard (chapter 5) and the part of it which applies to the RC851 terminal is referred here.

#### **3.1 The Received Data Stream**

3.1

The amount of data sent from the host computer to the terminal is structured in blocks but may be considered to be a continuous stream.

The terminal contains a buffer in which the received data are temporarily stored before they are used to produce the character image output.

#### **3.2 The Character Image Output**

3.2

the character image output may consist of one or more pages.

A page is composed of 25 lines each composed of 80 character positions.

The lines constituting a page as well as the character positions constituting a line are identified by the natural numbers 1, 2, 3 ...

Each character position either is erased or images SPACES or a graphic character or one of the control functions for which a graphic representation is required.

The initial state of all character positions is erased.

### 3.3 The Active Position

3.3

At any time, there is a unique character position which is called the "active position".

The active position is the character position which is to image the graphic symbol representing the next graphic character of the received data stream or the next control function for which a graphic representation is required. The active position is also the reference position against which certain format effectors or editor functions are performed (see 3.4).

The line containing the active position is called the "active line".

#### Implicit Movement

If the active position is not the last character position of a line, it is moved to the following character position of the active line.

An implicit movement is performed when SPACE or a graphic character is received or a control function, for which a graphic representation is required, is executed.

#### Explicit Movement

The active position is moved to a specified character position.

An explicit movement is performed when a control function is executed which causes the active position to be moved to a specified position.

### 3.4 Format Effectors and Editor Functions

3.4

Two classes of control functions have an action on the layout of information on the terminal display. They are format effectors and editor functions. The principal difference between editor functions and format effectors is that the latter are sensitive to the format effector action mode, whereas the former are not.

### 3.4.1 Format Effectors

3.4.1

Format effectors belong to the data stream and shall be treated as data which happen to have a format representation rather than a graphic representation. Format effectors describe how the originator of the data stream wishes the information to be formatted.

Format effectors are processed as follows depending on the setting of the FORMAT EFFECTOR ACTION MODE of the device.

If the FORMAT EFFECTOR ACTION MODE is set to EXECUTE, the action specified by the format effector (usually an active position movement) is immediately performed.

If the FORMAT EFFECTOR ACTION MODE is set to STORE, the format effector is treated as a graphic and stored in the buffer. In this case, the specified action is intended to be performed by an auxiliary input/output device when the associated data are transferred.

### 3.4.2 Editor Functions

3.4.2

The main purpose of editor functions is to edit, alter, or transpose the visual arrangement of data.

Typical use of editor functions are:

- Coding of local functions for example encoding keyboard functions when the keyboard is logically uncoupled from the output imaging mechanism of a device.
- Transposing intended representation to an alternate representation in those cases where the receiving device is unable to display the intended image.

### 3.5 Editing Operations

3.5

Editing operations (erasure, deletion and insertion) are performed either in execution of control functions in the received data stream, or under control of the keyboard.

#### 3.5.1 Deletion

3.5.1

The data contained in one or more character positions are removed by shifting the contents of an adjacent string of character positions so that the data to be removed are overwritten. As a result a string of character positions, equal in length to the deleted string, is erased at the beginning or the end of the shifted part.

#### 3.5.2 Insertion

3.5.2

One or more erased positions are inserted by shifting the contents of a string of character positions adjacent to the position where the insertion is to be made. As a result a string of data, equal in length to the inserted string, is removed at the beginning or the end of the shifted part.

#### 3.5.3 Editing Modes and Insertion/Deletion

3.5.3

In case of a deletion or insertion, the string which is shifted either precedes or follows the position where the deletion or insertion is made, depending on the setting of the HORIZONTAL EDITING MODE and of the VERTICAL EDITING MODE.

### 3.6 Selected and Qualified Areas

3.6

#### 3.6.1 Selected Areas

3.6.1

A selected area is a string of character positions, the contents of which may be eligible to be transmitted in the form of a data stream or to be transferred to an auxiliary input/output device.

The beginning of a selected area is established by START OF SELECTED AREA (SSA). The character position which is the active position after receipt of SSA is the first character position of the selected area.

The end of a selected area is established by END OF SELECTED AREA (ESA). The character position which is the active position before receipt of ESA is the last character position of the selected area.

#### 3.6.2 Qualified Areas

3.6.2

A qualified area is a string of character positions with which certain characteristics are associated, such as one or a combination of the following:

- the contents of the character positions are protected against manual alteration;
- the set of characters which are permitted to be entered is restricted (e.g. to numeric or alphabetic characters only);
- the character positions are protected against erasure;
- a tabulation stop is associated with the first character position;
- the character positions are to be excluded, i.e. guarded from transmission of a data stream, or from transfer to an auxiliary input/output device.

The beginning of a qualified area is established by DEFINE AREA QUALIFICATION (DAQ). The character position which is the active position after receipt of DAQ is the first character position of the qualified

area. The type of area qualification is specified by the parameter of DAQ. The end of a qualified area is established by the beginning of the following qualified area.

#### 3.6.3 Protected Area

3.6.3

A protected area is a special case of a qualified area. It is a string of character positions, the contents of which are protected against manual alteration. A protected area may, in general, be either guarded or unguarded.

#### 3.6.4 Guarded Area

3.6.4

A guarded area is a special case of a qualified area. It is a protected area which is to be excluded from transmission of a data stream and from transfer to an auxiliary input/output device.

An alternative way to establish the beginning and end of a guarded protected area is by means of START OF PROTECTED AREA (SPA) and END OF PROTECTED AREA (EPA).

### 3.7 Auxiliary Output Devices

3.7

Data transfer to an auxiliary output device is initiated either by the operation of an appropriate button on a keyboard or by the control function MEDIA COPY (MC) appearing in the received data stream.

If there are more than one auxiliary output devices, the relevant device is specified by the parameter of MC.

#### **4. STANDARD TERMINAL MODES**

4.

This section describes the use by the RC851 terminal of the modes defined by the ECMA-48 standard.

Where nothing else is mentioned the mode may be altered both by the host computer and by the operator via a menu picture.

Alterations made by the operator may be either permanent (stored in the non-volatile memory) or temporary. Alterations made by the host computer are always temporary.

The default value of each switch is marked by a D. This value is obtained from the host computer by means of the RM (reset mode) command.

When a mode has a fixed value on the RC851 terminal the value of this mode is stated.

The modes are described in alphabetic order.

##### **4.1 Control Representation Mode**

4.1

Control: D

All control functions are performed as defined, subject to the FORMAT EFFECTOR ACTION MODE in so far as format effectors are concerned. In addition to being performed some control functions may have a graphic representation.

Graphic:

All control functions, except RESET MODE (RM), are treated as graphics.

##### **4.2 Editing Boundary Mode**

4.2

Display: D

The effects of the editing control functions are limited to the displayed portion of a multiple-page buffer.

All:

The editing control functions may affect character positions outside the displayed portion of a multiple-page buffer.

**4.3 Erasure Mode**

4.3

Protect: D

Only unprotected data are affected by an erasure control function.

All:

Protected as well as unprotected data are affected by an erasure control function.

**4.4 Format Effector Action Mode**

4.4

Execute: D

A format effector causes the specified action to be performed immediately.

Store:

A format effector is treated as a graphic.

This mode is significant only if the CONTROL REPRESENTATION MODE is set to CONTROL.

**4.5 Format Effector Transfer Mode**

4.5

Insert:

Format effectors are inserted in a transmitted data stream or in any data transferred to any auxiliary output device:

- the format effectors CARRIAGE RETURN (CR) and LINE FEED (LF), or NEXT LINE (NEL), are inserted in the data stream to separate successive lines;
- other format effectors may be inserted as appropriate, e.g. HORIZONTAL TABULATION (HT) to represent a string of erased character positions preceding a tabulation stop.

Exclude: D

No format effectors other than those received while the FORMAT EFFECTOR ACTION MODE is set to STORE are included in a transmitted data stream or in data transferred to any auxiliary input/output device.

**4.6 Graphic Rendition Combination Mode**

4.6

**Replacing: D**

Each occurrence of the control function SELECT GRAPHIC RENDITION (SGR) cancels the effect of any preceding occurrence. Any graphic rendition aspects that are to remain unchanged after an occurrence of SGR shall be re-specified by that SGR.

**Cumulative:**

Each occurrence of the control function SELECT GRAPHIC RENDITION (SGR) causes only those graphic rendition aspects to be changed that are specified by that SGR. All other graphic rendition aspects remain unchanged.

**4.7 Guarded Area Transfer Mode**

4.7

**Guard: D**

Only unguarded data in an eligible area are transmitted.

**All:**

Guarded as well as unguarded data in an eligible area are transmitted.

**4.8 Horizontal Editing Mode**

4.8

**> Following: D**

A character insertion causes a string of following data beginning with the contents of the active position to be shifted forward; a character deletion causes a string of data following the active position to be shifted backward.

**Preceding:**

A character insertion causes a string of preceding data ending with the contents of the active position to be shifted backward; a character deletion causes a string of data preceding the active position to be shifted forward.

**4.9 Insertion Replacement Mode**

4.9

**Replace: D**

The receipt of a graphic character or a control function for which a graphic representation is required causes the appropriate graphic symbol to replace the graphic symbol currently imaged at the active position.

**Insert:**

The receipt of a graphic character or a control function for which a graphic representation is required causes the appropriate graphic symbol to be inserted at the active position.

The operation of inserting a character is performed as described in 3.5.

**4.10 Keyboard Action Mode**

4.10

**Enabled: D**

The keyboard is enabled to be used.

**Disabled:**

The keyboard is disabled to be used.

The only exceptions are the shift, ctrl, lock, reset, break, and the menu keys.

**4.11 Multiple Area Transfer Mode**

4.11

**> Single: D**

Only the selected area which contains the active position is eligible to be transmitted.

**> Multiple:**

All selected areas are eligible to be transmitted.

This mode is significant only if the SELECTED AREA TRANSFER MODE is set to SELECT.

**4.12 Positioning Unit Mode**

4.12

Character: D

The unit for numeric parameters of the positioning format effectors is one character position.

Size:

The unit for numeric parameters of the positioning format effectors is that established by SELECT SIZE UNIT (SSU).

Fixed value: Character.

This implies that the control function SSU will be ignored.

**4.13 Selected Area Transfer Mode**

4.13

→ Select: D

Only selected areas are eligible to be transmitted.

All:

All data, irrespective of any explicitly defined selected areas, are eligible to be transmitted.

**4.14 Send/Receive Mode**

4.14

Monitor: D

Data which are locally entered are immediately imaged.

Simultaneous:

Local input facilities are logically disconnected from the output mechanism; only data which are sent to the terminal are imaged.

**4.15 Status Report Transfer Mode**

4.15

Normal: D

No device status reports are generated automatically.

Diagnostic:

A device status report in the form of a device control string is automatically included in every transmitted data stream.

**4.16 Tabulation Stop Mode**

4.16

**Multiple:**

A horizontal tabulation stop applies to the corresponding character positions of all lines.

**Single: D**

A horizontal tabulation stop applies only to the line in which it is set.

**4.17 Transfer Termination Mode**

4.17

**Cursor: D**

Only data preceding the active position are eligible to be transmitted.

**All:**

Data preceding, following and at the active position are eligible to be transmitted.

**4.18 Vertical Editing Mode**

4.18

**→ Following: D**

A line insertion causes the contents of the active line and of following lines to be shifted down; a line deletion causes the contents of following lines to be shifted up.

**Preceding:**

A line insertion causes the contents of the active line and of preceding lines to be shifted up. A line deletion causes the contents of preceding lines to be shifted down.

## **5. ADDITIONAL MODE SWITCHES**

5.

Besides the variations formalised by the ECMA-48 standard in the form of modes some matters are left to the implementors.

The RC851 terminal offers some of these matters to be dynamically altered by setting of additional mode switches.

Some of these switches are changeable by the operator only: answer back, CTS timeout, DTR handshake, echo, online, timeout, keyboard lock, printer code length, printer code parity, printer code stop bits, printer speed, ISO code format, transmission code length, transmission code parity, transmission code stop bits, and transmission speed.

The values of the rest of the switches may be changed either by the operator via a menu picture or by the host computer via the control functions SET MODE (SM) and RESET MODE (RM). The corresponding parameters for SM and RM are given in 6.2.80. The default value of each switch are marked by a D. This value is obtained from the host computer by an RM.

Changes of switch values made by the operator may be either permanent or temporary, whereas changes made from the host computer are temporary.

Like the standard terminal modes the additional mode switches are described in alphabetic order.

### **5.1 Answer Back Switch**

5.1

On: D.

A terminal software version number are delivered as response to the ENQ code.

— Off:

The ENQ code is ignored.

**5.2 Command Stop Character**

5.2

✓ On:  
Any transmission (except on an STS) from the terminal to the host computer is terminated by an "end of command". See the description of the end of command switch.

Off: D.  
No stop character is added to transmitted codes.

**5.3 Beginning of Line Wrap Switch**

5.3

✓ Wrap: D.  
A backward linear movement of the cursor beyond the beginning of a line makes the cursor wrap around to the preceding line. If the cursor is in the home position, it will remain there.

Stop:  
A movement which would have extended beyond the beginning of the line has no effect.

**5.4 Block Transmission Control Switch**

5.4

✓ Remote: D.  
Block transmission from the terminal to the host computer is initiated by a STS received from the host computer. A "request STS" is sent to the host computer whenever a predefined "send activating character" is received from the keyboard (see section 6.3.3). At power up/soft reset of the terminal the "send activating character" is taken from the non-volatile memory and loaded into both of the two send keys.

Local:  
Block transmission from the terminal to the host computer is initiated either by a STS received from the host computer or by a predefined "send activating character" received from the keyboard.

**5.5 CTS Timeout Switch**

5.5

O..255:

If CTS timeout = 0 the terminal will react on CTS set to a logical low level by waiting (indefinitely) for CTS going to high level before transmitting another character. Otherwise the CTS-timeout indicates the CTS timeout period measured in 20 msec. If the CTS stays on the low level for longer than this period the terminal will consider the line to be down.

Default value: 49.

**5.6 Cursor Blink**

5.6

This switch contains the blink state of the cursor. The possible values of the switch are:

Slow Blink  
Fast Blink  
No Blink

Default value: Slow Blink.

**5.7 Cursor Baseline**

5.7

The switch contains the Baseline of the cursor. The values must be in the range 0 to 15 (16 is the number of rows in a character dot matrix).

Default value: 15.

**5.8 Cursor Topline**

5.8

Contains the topline of the cursor. Similar to cursor baseline.

Default value: 14.

### 5.9 Cursor Return Switch

5.9

CR: D.

A CR received either from the keyboard or from the line is interpreted as a cursor return.

NEL:

A CR received is interpreted as the code NEL (Next Line) in the C1 set.

### 5.10 DTR Handshake Switch

5.10

On: D.

The terminal will handshake with the host computer via the modem lines.

The modem line DTR will be set to a logical low level when only four free bytes are left in the internal receive buffer, and set back to a logic high level when another input buffer is supplied.

Off:

No handshake is performed, and characters transmitted to the terminal may be lost.

Note:

This switch does not affect the CTS-timeout handling on transmission from the terminal to the host computer.

### 5.11 Echo Switch

5.11

Internal: D.

Graphic codes entered from the keyboard are echoed back by the terminal.

External:

The terminal does not perform echo.

**5.12 End of Block**

5.12

Any block transmission from the terminal to the host computer is terminated by this code. The code must be in the interval 1..255.

→ Default value: 23.

**5.13 End of Command**

5.13

If the command stop character switch is ON, the value of the end of command switch is added to any transmitted code sequence, except on the STS command. The end of command code must be in the range 1..255.

→ Default value: 3.

**5.14 End of Line Wrap Switch**

5.14

Wrap: D.

A forward linear movement or an implicit movement of the cursor beyond the end of a line makes the cursor wrap around to the following line. If the cursor is in the last position on the screen, the action taken depends on the ROLL/PAGE MODE SWITCH.

Stop:

A movement which would have extended beyond the end of the line has no effect. If a character is written in the last position of a line, the cursor will remain in this position and subsequent characters will cause an overwrite.

**5.15 ISO Code Format Switch**

5.15

7 BIT: D.

Control functions are transmitted and interpreted as represented in ISO 7-bit coded character set.

8-bit:

Control functions are transmitted and interpreted as represented in ISO 8-bit coded character set.

Note: The ISO CODE FORMAT SWITCH is overruled by the

TRANSMISSION CODE LENGTH SWITCH (if the latter is 7-bit the ISO 7-bit coded representation of the control functions are assumed).

#### 5.16 Keyboard Lock Switch

5.16

- Off: D.  
The keyboard LOCK-key is set off after power on.
- On:  
The keyboard LOCK-key is set on after power on.

#### 5.17 Lines Per Page Switch

5.17

- 25 lines: D.  
The display is formatted as 25 data lines.
- 24 lines:  
The display is formatted as 24 data lines.

#### 5.18 Margin Bell Switch

5.18

- On:  
A bell is activated when the 72nd position of a line is entered by a forward movement of the cursor.
- Off: D.  
No bell.

#### 5.19 Modified Area Transfer Mode

5.19

- Modified:  
Only modified areas are eligible to be transmitted. An area is regarded as modified if the contents of it has been changed from the keyboard.
- All: D.  
Both modified and unmodified areas are eligible to be transmitted.

**5.20 Online Switch**

5.20

—▶ Toggle: D.

The terminal will initially go on-line. Each subsequent operation of the SELECT key will alter the status between being off-line and on-line.

Online:

The terminal will stay online irrespective of the SELECT key.

**5.21 Printer Code Length Switch**

5.21

7-bit: D.

The number of data bits in each transmitted character are seven.

8-bit:

The number of data bits in each transmitted character are eight.

**5.22 Printer Code Parity Switch**

5.22

None:

No parity bit is added to characters transmitted to the printer.

Even: D.

An even parity bit is added to each character transmitted to the printer.

Odd:

An odd parity bit is added to each character transmitted to the printer.

**5.23 Printer Code Stop Bits Switch**

5.23

1-bit:

One stop bit is added to each character transmitted to the printer.

1.5-bit:

1.5 stop bits are added.

2-bit: D  
Two stop bits are added.

#### 5.24 Printer Mode Switch

5.24

Local: D.  
Printing initiated from the keyboard is sent to the local printer. The host computer is not informed.

Remote:  
Activation of the print key causes a MEDIA COPY (MC) to be sent to the host computer.  
Printouts initiated from the host computer by a MC are not affected by this switch.

#### 5.25 Printer Speed Switch

5.25

110 bits/sec.  
300 bits/sec.  
600 bits/sec.  
1200 bits/sec.  
2400 bits/sec.  
4800 bits/sec.  
9600 bits/sec.

Default value: 4800 bits/sec.

#### 5.26 Repeat Direction Switch

5.26

> Horizontal: D  
The repeat function REP works in horizontal direction.

Vertical:  
The repeat function repeats characters in the vertical direction.

Note:  
This switch is alterable by the host computer only.

Relay-print switch.

Perform: D

Print-only

**5.27 Roll/Page Mode Switch**

5.27

Roll: D.

If the END OF LINE WRAP SWITCH is WRAP a forward linear movement or an implicit movement of the cursor beyond the last character position on the screen will cause a roll-up to be generated.

A roll-up (-down) may also be generated by the control function SCROLL-UP (DOWN).

Selected and qualified areas are moved with the lines.

Page:

No roll will be generated.

**5.28 Selected Area Visible Mode**

5.28

Off: D

The start and end of selected areas (SSA, ESA) are not shown on the display.

On:

The start and end of selected areas are indicated by the graphic rendition in the positions in question.

**5.29 Send Activating Character**

5.29

This switch holds a decimal code in the range 1..255. At activation (from the keyboard) of the send activating character the "send request character" (see below) is sent to the host computer (if the block transmission control switch is remote).

→ Default value: ~~13~~ 4

**5.30 Send Request Character**

5.30

Holds the send request character. This value must be in the range 1..255.

→ Default value: 13

5.31 Suppress Trailing Spaces Switch

5.31

✓ Off: D.  
Trailing spaces will not be suppressed.

On:  
Trailing spaces of transmitted areas are not transmitted.

5.32 Terminal Type

5.32

Holds a decimal value for the terminal type. The value must be in the range 1..255.

Default value:

5.33 Timeout Switch

5.33

✓ On: D.  
After a period with no activity on the terminal the picture is turned off. The picture will immediately turn on if a character is received from the line or the keyboard.

Off:  
The picture will stay on as long as the terminal is turned on.

5.34 Transmission Code Length Switch

5.34

7-bit:  
The number of data bits in each transmitted or received character are seven.

✓ 8-bit: D  
The number of data bits per character are eight, excluding start, stop and parity bits.

5.35 Transmission Code Parity Switch

5.35

None:

No parity bit is added to transmitted characters and received characters are assumed to be followed immediately by a stop bit.

Even: D.

An even parity bit is added to each transmitted character and received characters are checked for even parity.

Odd:

An odd parity bit is added to each transmitted character and received characters are checked for odd parity.

5.36 Transmission Code Stop Bits Switch

5.36

1-bit: D.

One stop bit is added to each transmitted character.

1.5-bit:

1.5 stop bits are added to each transmitted character.

2-bit:

Two stop bits are added to each transmitted character.

5.37 Transmission Rate Switch

5.37

110 bits/sec.

300 bits/sec.

600 bits/sec.

1200 bits/sec.

2400 bits/sec.

4800 bits/sec.

9600 bits/sec.

DEFAULT VALUE: 2400 bits/sec.

**5.38      Unit Separator**

5.38

Qualified/selected areas are separated by this code when transmitted to the host computer on an STS. The value of the code must be in the range 1..255.

★ Default value: 31.

✓ XON/XOFF Switch

## 6. RECEIVED AND TRANSMITTED CODES

6.

### 6.1 Notation

6.1

The following notation is used to define characters and character sequences:

|               |                                                                                                                                            |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| <HH>          | Specifies the hex value of a character.                                                                                                    |
| X<HH>         | Specifies the hex value of the character X.                                                                                                |
| A B           | Space is sometimes used to separate parts of a sequence. The space is included for clarity only, and is never a part of the code sequence. |
| CSI p1;p2 H   | is equivalent to                                                                                                                           |
| CSI p1 ; p2 H |                                                                                                                                            |
| ;             | A delimiter between parameters in CSI sequences. ; <3B> is included in the data stream.                                                    |
| pn            | Parameters are represented by one or more ASCII coded decimal digits. <30> to <39>.                                                        |

### 6.2 Received Code Sequences

6.2

#### 6.2.1 APC - Application Program Command

6.2.1

Representation: <9F> or ESC <5F>.

APC is the opening delimiter of a control string for an application program use. The control string following may contain any character different from the terminating delimiter ST. The control string is not shown on the display, but only stored in the terminal. The control string is transmitted to the host computer whenever transmission of the display picture is requested.

The control string is removed by an empty string (APC followed by ST) or by a clear memory received from the host (ED with parameter 10).

Only one control string can be hidden in the terminal, a new control string is overwriting any old one.

An empty control string is never transmitted to the

host.

The length of a control string is max. 200 bytes.

#### 6.2.2 BEL - Audible Alarm

6.2.2

Representation: <07>.

A BEL code sounds the audible alarm.

#### 6.2.3 BS - Backspace

6.2.3

Representation: <08>

Moves the active position backward one character and erases the new active position. BS is identical to a CUB followed by an ECH.

#### 6.2.4 CBT - Cursor Backward Tabulation

6.2.4

Representation: CSI p1 <5A>

Default value: 1.

The active position is moved to the character position corresponding to the p1-th preceding horizontal tabulation stop.

If p1 is larger than the number of preceding horizontal tabulation stops, the active position is moved (cyclic) from the first tabulation stop in page to the last one.

#### 6.2.5 CCH - Cancel Character

6.2.5

Representation: <94> or ESC <54>

Ignored.

6.2.6 CHA - Cursor Horizontal Absolute

6.2.6

Representation: CSI p1 &lt;47&gt;

Default value: 1.

The active position is moved to the p1-th character position of the active line. CHA is ignored if p1 is zero or larger than 80.

6.2.7 CHT - Cursor Horizontal Tabulation

6.2.7

Representation: CSI p1 &lt;49&gt;

Default value: 1.

The active position is moved to the character position corresponding to the p1-th following horizontal tabulation stop.

If p1 is larger than the number of following tabulation stops, the active position is moved cyclic from the last tabulation stop in page to the first one.

6.2.8 CNL - Cursor Next Line

6.2.8

Representation: CSI p1 &lt;45&gt;

Default value: 1.

The active position is moved to the first character position of the p1-th following line.

If the number of the active line plus p1 is greater than the number of the last data line, the resulting active position depends on the roll/page mode switch:

PAGE: the active position will be the first character position of the last data line,

ROLL: a roll up is performed and the active position will be in the first position of the last line.

6.2.9 CPL - Cursor Preceding Line

6.2.9

Representation: CSI p1 &lt;46&gt;

Default value: 1.

The active position is moved to the first character position of the p1-th preceding line.

If the number of the active line minus p1 is less than or equal to zero, the active position is moved to the first character position of the first line.

6.2.10 CPR - Cursor Position Report

6.2.10

Representation: CSI p1;p2 &lt;52&gt;

Default values: 1 1.

Ignored.

6.2.11 CR - Cursor Return

6.2.11

Representation: &lt;OD&gt;

Moves the active position to the first position of the active line.

Affected by switches: Cursor return switch (see 5.4).  
If the cursor return switch is in the NEL position, the CR action is followed by an LF action as described for LF.

6.2.12 CSI - Control Sequence Introducer

6.2.12

Representation: &lt;9B&gt; or ESC &lt;5B&gt;

CSI is the first character of a control sequence.

6.2.13 CTC - Cursor Tabulation Control

6.2.13

Representation: CSI p1 <57>

Default value: 0.

CTC causes one or more tabulation stops to be set or cleared, depending on the parameter values.

0 set a horizontal tabulation stop at the active position.

1 ignored

2 clear the horizontal tabulation stop at the active position.

3 ignored

4 clear all horizontal tabulation stops at the active line

5 clear all horizontal tabulation stops

6 ignored

Other values of p1 will be ignored.

6.2.14 CUB - Cursor Backward

6.2.14

Representation: CSI p1 <44>

Default value: 1.

The active position is moved to the p1-th preceding character position.

Affected by switches: Beginning of line wrap.

If the resulting active position is outside the active line, the cursor will wrap around if the beginning of line wrap switch is set to WRAP.

If the resulting active position is outside the active line and the beginning of line wrap switch is set to STOP the active position is set to the first position of the active line.

If the resulting active position is outside the shown page, the active position is set at the first position in page.

6.2.15 CUD - Cursor Down

6.2.15

Representation: CSI pl <42>

Default value: 1.

The active position is moved to the corresponding character position of the pl-th following line. If the resulting active position is beyond the current page the action taken depends on the roll/page mode switch:

ROLL: A scroll up is performed such that the resulting active line will be the last shown data line on the display.

PAGE: The resulting active line is the last data line in the shown page.

Affected by switches: Roll/page mode.

6.2.16 CUF - Cursor Forward

6.2.16

Representation: CSI pl <43>

Default value: 1.

The active position is moved to the pl-th following character position.

Affected by switches: End of line wrap.  
Roll/page mode.

If the resulting active position is outside the active line, the action taken is dependent on the end of line wrap switch:

WRAP: The active position is allowed to be outside the current active line.

STOP: The resulting active position will be the last character position on the active line.

If the resulting active position is beyond the current page the action taken depends on the roll/page mode switch:

ROLL: A scroll up is performed such that the resulting active line will be the last shown data line on the display.

PAGE: The active position will be the last character position on the display.

#### 6.2.17 CUP - Cursor Position

6.2.17

Representation: CSI p1;p2 <48>

Default values 1;1.

The active position is moved to the p1-th line at the p2-th character position.

p1 must be in the range 1 to 25 (24) and p2 in the range 1 to 80. If one or both of these conditions are not satisfied the sequence will be ignored.

If only one parameter is given this parameter will specify the line number and the active position will be the first character position on that line.

#### 6.2.18 CUU - Cursor Up

6.2.18

Representation: CSI p1 <41>

Default value: 1.

The active position is moved to the corresponding character position of the p1-th preceding line.

If the number of the active line minus p1 is zero or less, the resulting active line will be the first data line.

#### 6.2.19 CVT - Cursor Vertical Tabulation

6.2.19

Representation: CSI p1 <59>

Default value: 1.

Ignored.

6.2.20 DA - Device Attributes

6.2.20

Representation: CSI pl &lt;63&gt;

Default value: 0.

The terminal will respond by sending a new DA back to the host computer giving the content of the terminal type, see section 6.4.

6.2.21 DAQ - Define Area Qualification

6.2.21

Representation: CSI pl;...;pn &lt;6F&gt;

Default value: 0

DAQ indicates that the active position is the first character position of a qualified area. The end of the qualified area is indicated by the beginning of the following area, or the SPA or EPA codes.

Several parameters may be given separated by semi-colon <3B>.

| Parameter | Meaning                                     |
|-----------|---------------------------------------------|
| 0         | Unprotected                                 |
| 1         | Guarded (implies protected)                 |
| 2         | Graphic character input                     |
| 3         | Numeric input                               |
| 4         | Alphabetic input                            |
| 5         | Input to be aligned to the right            |
| 6         | Zerofill in area                            |
| 7         | Horizontal tabulation stop at start of area |
| 8         | Protected (unguarded)                       |
| 9         | Space fill in area                          |
| 10        | Input to be aligned to the left             |

Other parameters are ignored.

If conflicting parameter specifications are given, the last given parameter will override the first one.

6.2.22 DCH - Delete Character

6.2.22

Representation: CSI p1 <50>

Default value: 1.

The contents of the active position and the p1-1 preceding or following character positions are removed, depending on the setting of horizontal editing mode switch. The contents of an adjacent string of character positions are shifted towards the active position. p1 character positions on the other end of the shifted string are erased.

Affected by switches: Editing boundary mode.  
Horizontal editing mode.  
Extent established by SEE.

Definitions of areas and tabulation stops are not affected by DCH.

6.2.23 DCS - Device Control String

6.2.23

Representation: <90> or ESC <50>

DCS is the opening delimiter of a device control string with one of the following structures:

L<4C> p1 p2

for keyboard lamp control. p1 is a one digit ASCII code in the range <30> to <39> and <41> to <44> (or <61> to <64>) giving a lamp number.

p2 is a one digit ASCII code in the range <30> to <31>:

<30>: Lamp off

<31>: Lamp on

P<50> p1 AA BB CC DD .....

for loading a normal push key.

Q<51> p1 AA BB CC DD .....

for loading a transmit only push key.

R<52> p1 AA BB CC DD ....

for loading a local push key.

T<54> p1 AA BB CC DD ...

for giving a title to a push key.

p1 is a two digit ASCII hexadecimal number; each character being in the range <30> to <39> and <41> to <46> or <61> to <66> giving the number of the push key.

AA, BB, CC, DD, ... are pairs of characters each giving one character to load into the push key. Each character in a pair must be in the range <30> to <39> and <41> to <46> or <61> to <66>.

S<53> AA BB

for loading the send activating character and the character sent at activation.

AA is the send activating character.

BB is the character sent at activation.

Each character in a pair must be in the range <30> to <39> and <41> to <46> (or <61> to <66>).

#### 6.2.24 DL - Delete Line

6.2.24

Representation: CSI pl <4D>

Default value: 1.

The contents of the active line and pl preceding or following lines are removed, depending on the setting of the VERTICAL EDITING MODE. The contents of a number of preceding or following lines are shifted towards the active line. At the other end of the shifted part pl lines are erased. The extent of the data affected by the deletion depends on the setting of the EDITING BOUNDARY MODE.

Any occurrences of the start or end of a selected area, the start or end of a qualified area, or a tabulation stop in the shifted part are also shifted.

If the TABULATION STOP MODE is set to SINGLE, horizontal tabulation stops in the erased lines are cleared.

If the number of lines to be removed is larger than the existing candidates for removal, only the number of existing candidates are removed.

In page mode the function is ignored.

Affected by switches: Vertical editing mode.  
Tabulation stop mode.  
Editing boundary mode.  
Roll/Page mode.

6.2.25 DMI - Disable Manual Input

6.2.25

Representation: ESC &lt;60&gt;

Ignored.

6.2.26 DSR - Device Status Report

6.2.26

Representation: CSI pl &lt;6E&gt;

Default value: 0

DSR either reports the status of the sending device or requests a status report from the receiving device, depending on the parameter value:

- 5 a DSR is requested
- 6 a report of the active position in the form of a CPR is requested.

Other parameter values are ignored.

6.2.27 EA - Erase in Area

6.2.27

Representation: CSI pl &lt;4F&gt;

Default value: 0.

Some or all character positions of the active qualified or selected area, i.e. the area in which the active position resides, are erased, depending on the parameter value:

- 0 the active position and the character positions up to the end of the qualified area are erased
- 1 the character positions from the beginning of the qualified area up to and including the active position are erased
- 2 all character positions of the qualified area are erased.
- 10 the active position and the character positions up to the end of the selected area are erased.
- 11 the character positions from the beginning of the selected area up to and including the active position are erased.
- 12 all character positions of the selected area are

erased.

The extent of the string affected by the erasure depends on the setting of the EDITING BOUNDARY MODE. Whether protected areas are erased, or unprotected areas only, depends on the setting of the ERASURE MODE.

Only characters (i.e. not their graphic rendition) will be affected.

Affected by switches: Editing boundary mode  
Erasure mode.

#### 6.2.28 ECH - Erase Character

6.2.28

Representation: CSI pl <58>

Default value: 1.

The active position and the pl - 1 following character positions are erased. The extent of the string affected by the erasure depends on the setting of the EDITING BOUNDARY MODE.

Whether protected areas are erased, or unprotected areas only, depends on the setting of the ERASURE MODE.

Affected by switches: Editing boundary mode  
Erasure mode

#### 6.2.29 ED - Erase in Display

6.2.29

Representation: CSI pl <4A>

Default value: 0.

Some or all character positions of the active page, i.e. the page in which the active position resides, are erased, depending on the parameter value:

- 0 the active position and the character positions up to the end of the page are erased
- 1 the character positions from the beginning of the page up to and including the active position are

- erased
- 2 all character positions of the page are erased.
  - 10 field and area definition at the active position and the positions up to the end of the page are removed. The graphic rendition of the positions are set to normal.
  - 11 field and area definitions from the beginning of the page up to and including the active positions are removed.
  - 12 all field and area definitions are removed from the page, and the graphic rendition of all positions are set to normal.
  - 20 all character positions of the page are erased and all area definitions are removed.

The extent of the string affected by the erasure depends on the setting of the EDITING BOUNDARY MODE.

Whether protected areas are erased (parameters 0..2), or unprotected areas only, depends on the setting of the ERASURE MODE.

Affected by switches: | Editing boundary mode  
| Erasure mode.

#### 6.2.30 EF - Erase in Field

6.2.30

Representation: CSI pl <4E>

Default value: 0.

Some or all character positions of the active field, i.e. the field in which the active position resides, are erased, depending on the parameter value:

- 0 the active position and the character positions up to the end of the field are erased
- 1 the character positions from the beginning of the field up to and including the active positions are erased
- 2 all character positions of the field are erased.

The extent of the string affected by the erasure depends on the setting of the EDITING BOUNDARY MODE.

Whether protected areas are erased, or unprotected areas only, depends on the setting of the ERASURE

MODE.

Affected by switches: Editing boundary mode  
Erasure mode.

#### 6.2.31 EL - Erase in Line

6.2.31

Representation: CSI pl <4B>

Default value: 0.

Some or all character positions of the active line are erased, depending on the parameter value:

- 0 the active position and the character positions up to the end of the line are erased
- 1 the character positions from the beginning of the line up to and including the active positions are erased
- 2 all character positions of the line are erased.
- 10 field and area definitions at the active position up to the end of the line are removed. The graphic rendition of the positions are set to normal.
- 11 field and area definitions from the beginning of the line up to and including the active position are removed.
- 12 all field and area definitions are removed from the active line, and the graphic rendition are set to normal in the positions.

Whether protected areas are erased, or unprotected areas only, depends on the setting of the ERASURE MODE.

Affected by switches: Erasure mode.

#### 6.2.32 EMI - Enable Manual Input

6.2.32

Representation: ESC <62>

Ignored.

6.2.33 ENQ - Request Answer back Message

6.2.33

Representation: <05>

The terminal will respond by sending the RC851 version number in a DCS.

Affected by switches: Answer back.

6.2.34 EPA - End of Protected Area

6.2.34

Representation: <97> or ESC <57>

EPA indicates that the active position is the end of a string of character positions, the contents of which are protected against manual alteration and are guarded against transmission. The beginning of this string is indicated by START OF PROTECTED AREA (SPA), or a DAQ code with parameter 1.

6.2.35 ESA - End of Selected Area

6.2.35

Representation: <87> or ESC <47>

ESA indicates that the active position is the end of a string of character positions, the contents of which are eligible to be transmitted in the form of a data stream. The beginning of this string is indicated by START OF SELECTED AREA (SSA).

If the selected area visible mode is ON the position is displayed in a special graphic rendition, giving ↓ as a shadow pattern, (i.e. may be shown together with a character) in the position.

Affected by switch: Selected area visible mode.

6.2.36 ESC - Escape

6.2.36

Representation: <1B>

The escape code is a sequence introducer and must be followed by one or more codes to have any effect.

The escape code must be followed by:

1. A code within the range <40> to <5F> as a terminator, when the ESC code is used to make a C1 code, see 6.3
2. A code within the range <60> to <63> as terminator in the accepted two byte ESC sequences, see 6.3.

If the code following the ESC code is illegal, the ESC code and the illegal code is ignored.

#### 6.2.37 FNT - Font Selection

6.2.37

Representation: CSI p1;p2 <20><44>

Default values: 0

Ignored.

#### 6.2.38 GSM - Graphic Size Modification

6.2.38

Representation: CSI p1;p2 <20><42>

Default values: 100

Ignored.

#### 6.2.39 GSS - Graphic Size Selection

6.2.39

Representation: CSI p1 <20><43>

Default value: None

Ignored.

6.2.40 HPA - Horizontal Position Absolute

6.2.40

Representation: CSI pl <60>

Default value: 1

HPA is a format effector which is stored (dependant on format effector action mode) or executed as a CHA.

Affected by switches: Format effector action mode

6.2.41 HPB - Horizontal Position Backward

6.2.41

Representation: CSI pl <6A>

Default value: 1

HPB is a format effector which is stored (dependant on format effector action mode) or executed as a CUB.

Affected by switches: Format effector action mode

6.2.42 HPR - Horizontal Position Relative

6.2.42

Representation: CSI pl <61>

Default value: 1

HPR is a format effector which is stored (dependant on format effector action mode) or executed as a CUF.

Affected by switches: Format effector action mode

6.2.43 HT - Horizontal Tabulation

6.2.43

Representation: <09>

HT is equal to a default CHT.

6.2.44 HTJ - Horizontal Tabulation with Justification

6.2.44

Representation: <89> or ESC <49>

Ignored.

6.2.45 HTS - Horizontal Tabulation Set

6.2.45

Representation: <88> or ESC <48>

HTS is a format effector which causes a horizontal tabulation stop to be set at the active position.

The number of lines affected depends on the setting of the TABULATION STOP MODE.

Affected by switch: Tabulation stop mode.

6.2.46 HTSA - Horizontal Tabulation Set Absolute

6.2.46

Representation: CSI pl;...;pn <20><4E>

Default value: None.

HTSA is a format effector which causes a horizontal tabulation stop to be set at each position corresponding to a parameter value.

All other horizontal tabulation stops in the affected line or lines are cleared. The active position is not affected.

Affected by switch: Tabulation stop mode.

6.2.47 HVP - Horizontal and Vertical Position

6.2.47

Representation: CSI pl;p2 <66>

Default value: 1.

HVP is a format effector which is stored (dependant on format effector action mode) or executed as a CUP.

Affected by switches: Format effector action mode

6.2.48 ICH - Insert Character

6.2.48

Representation: CSI pl &lt;40&gt;

Default value: 1.

pl erased character positions are inserted at the active position. The previous contents of the active position and an adjacent string of character positions are shifted away from the active position. The contents of pl character positions at the other end of the shifted string are removed.

The position and the extent of the string affected by the insertion depend on the setting of the EDITING BOUNDARY MODE and of the HORIZONTAL EDITING MODE, and on the extent established by SELECT EDITING EXTENT (SEE).

Affected by switches: Editing boundary mode  
Horizontal editing mode  
SEE command.

6.2.49 IDCS - Identify Device Control String

6.2.49

Representation: CSI pl;..pn &lt;20&gt;&lt;4F&gt;

Default value: None

Ignored.

6.2.50 IL - Insert Line

6.2.50

Representation: CSI pl &lt;4C&gt;

Default value: 1.

pl erased lines are inserted at the active line. The previous contents of the active line and a number of preceding or following lines are shifted away from the active line, depending on the setting of the VERTICAL EDITING MODE. The extent of the part affected by the insertion depends on the setting of the EDITING BOUNDARY MODE. The contents of pl lines at the end of the shifted part are removed.

Any occurrences of the start or end of a selected area, the start or end of a qualified area, or a tabulation stop in the shifted part are also shifted.

Any occurrences of the start or end of selected areas, the start or end of qualified areas in the erased lines are removed and the graphic rendition of the erased position are set to normal. At the first position of the inserted lines an SSA is inserted, and an ESA is inserted in the last position.

If the TABULATION STOP MODE is set to SINGLE, horizontal tabulation stops in the erased lines are cleared.

In page mode this control sequence is ignored.

Affected by switches: Vertical editing mode  
Editing boundary mode  
Tabulation stop mode  
Roll/page mode.

#### 6.2.51 IND - Index

6.2.51

Representation: <84> or ESC <44>

IND is identical to a default CUD.

#### 6.2.52 INT - Interrupt

6.2.52

Representation: ESC <61>

The terminal will restart, except that no test programs will be executed.

#### 6.2.53 JFY - Justify

6.2.53

Representation: CSI pl;..pn <20><46>

Default value: 0

Ignored.

6.2.54 LF - Line Feed

6.2.54

Representation: <0A>

Advance the active position to the same character position on the next line.

If the active position is on the last data line the action depends on the setting of the roll/page mode switch. If the switch is set to PAGE, the LF code is ignored. If the switch is set to ROLL, the lines on the display are moved up one line and the last line is erased.

Affected by switches: Roll/page mode switch.

6.2.55 MC - Media Copy

6.2.55

Representation: CSI pl <69>

Default value: 0

MC initiates a transfer of data to the printer.

The effect of the operation depends on the parameter value:

- 0 A hard copy of the screen is transferred to the printer.
- ~~4~~ 4 Relay printing will be stopped.
- ~~5~~ 5 Will start relay printing.
- 8 A hard copy of the screen is transferred to the host computer.

All other parameter values will be ignored.

6.2.56 MW - Message Waiting

6.2.56

Representation: <95> or ESC <55>

MW causes the message waiting lamp to be set in the receiving device. A DSR with parameter 0 will be sent to the host computer, when the USM-key on the keyboard is depressed.

6.2.57 NEL - Next Line

6.2.57

Representation: <85> or ESC <45>

NEL is a format effector which is either stored (if format effector action mode is STORE) or executed as a default CNL.

Affected by switches: Format effector action mode.

6.2.58 NP - Next Page

6.2.58

Representation: CSI pl <55>

Default value: 1.

The pl-th following page of a multiple-page buffer is displayed.

If the number of the current page plus pl is larger than the actual number of pages, the last page will be displayed.

The cursor position is unchanged.

6.2.59 OSC - Operating System Command

6.2.59

representation: <9D> or ESC <5D>

OSC is the opening delimiter of a control string for privacy message use. The control string consists of maximum 80 characters, further characters until ST will be dropped.

Message characters outside the range <20> to <7E> are ignored.

Line 25 is saved and the control string is written on line 25.

6.2.60 PLD - Partial Line Down.

6.2.60

Representation: &lt;8B&gt; or ESC &lt;4B&gt;

Ignored.

6.2.61 PLU - Partial Line Up

6.2.61

Representation: &lt;8C&gt; or ESC &lt;4C&gt;

Ignored.

6.2.62 PM - Privacy Message

6.2.62

Representation: &lt;9E&gt; or ESC &lt;5E&gt;

As OSC.

6.2.63 PP - Preceding Page

6.2.63

Representation: CSI p1 &lt;56&gt;

Default value: 1.

The p1-th preceding page of a multiple-page buffer is displayed.

If the number of the current page minus p1 is zero or less, the first page is shown.

The cursor position is unchanged.

6.2.64 PPA - Page Position Absolute

6.2.64

Representation: CSI p1 &lt;20&gt;&lt;50&gt;

Default value: 1.

PPA is a format effector which causes the active position to be moved to the corresponding horizontal and vertical position on the p1-th page.

If p1 is illegal, the PPA is ignored.

#### 6.2.65 PPB - Page Position Backward

6.2.65

Representation: CSI p1 <20><52>

Default value: 1.

PPB is a format effector which causes the active position to be moved to the corresponding horizontal and vertical position on the p1-th preceding page.

If the number of the current page minus p1 is zero or less, the actual position will be moved to the first page.

#### 6.2.66 PPR - Page Position Relative

6.2.66

Representation: CSI p1 <20><51>

Default value: 1.

PPR is a format effector which causes the active position to be moved to the corresponding horizontal and vertical position on the p1-th following page.

If the number of the current page plus p1 is larger than the number of pages, the actual position is moved to the last page.

#### 6.2.67 PU 1 - Private Use 1 (Clear SSA)

6.2.67

Representation: <91> or ESC <51>

Character positions are scanned from the active position and backwards, and the first SSA-indicator met are removed.

6.2.68 PU 2 - Private Use 2 (Clear ESA)

6.2.68

Representation: <92> or ESC <52>

Character position are scanned from the active position and forwards, and the first ESA met are removed.

6.2.69 QUAD-QUAD

6.2.69

Representation: CSI pl; ...;pn <20><48>

Ignored.

6.2.70 REP - Repeat

6.2.70

Representation: CSI pl <62>

Default value: 1.

The preceding graphic is repeated pl times.

If the repeat direction switch is HORIZONTAL the character is repeated in the horizontal direction otherwise it is repeated in the vertical direction.

the resulting active position is right after the last graphic of the repeat sequence, if possible, otherwise it is in the position of the last drawn graphic.

Affected by switches: Repeat Direction Switch.

6.2.71 RI - Reverse Index

6.2.71

Representation: <8D> or ESC <4D>

RI is identical to a default CUU.

6.2.72 RIS - Reset to Initial State

6.2.72

Representation: ESC <63>

This sequence will have the same effect as if the power were switched off and on again.

6.2.73 RM - Reset Mode

6.2.73

Representation: CSI pl; ...;pn <6C>

Default value: None.

RM resets (sets to default) one or more modes of the terminal. Each mode is specified by a parameter value, see SM.

6.2.74 SD - Scroll Down

6.2.74

representation: CSI pl <54>

Default value: 1.

The displayed portion of a multiple-page buffer is moved by pl lines such that the displayed data appear to move down.

Affected by switch: Roll/page mode.

SD is ignored, if the roll/page mode is set to PAGE.

6.2.75 SEE - Select Editing Extent

6.2.75

Representation: CSI pl <51>

Default value: 0.

SEE establishes the editing extent for character insertion or deletion, depending on the parameter value:

- 0 The affected string consists of the entire buffer, or the displayed portion, depending on the setting of the EDITING BOUNDARY MODE
- 1 The affected string consists of the active line
- 2 The affected string consists of the data between the preceding and the following horizontal tabulation stop
- 3 The affected string consists of the qualified area containing the active position.
- 10 The affected string consists of the selected/unselected area containing the active position.

Affected by switch: Editing boundary mode.

#### 6.2.76 SGR - Select Graphic Rendition

6.2.76

Representation: CSI pl;...;pn <6D>

Default value: 0.

SGR is a format effector which specifies one or more graphic rendition aspects for the characters following in the data stream. The specified graphic rendition aspects remain in effect either until the next occurrence of SGR, or until they are explicitly changed by a following occurrence of SGR, depending on the setting of the GRAPHIC RENDITION COMBINATION MODE. Each graphic rendition aspect is specified by a parameter value:

- 0 default rendition (normal)
- 2 decreased intensity
- 4 underlined
- 5 blinking (slowly)
- 6 blinking (rapidly)
- 7 inverse video
- 8 invisible
- 10 standard character set - G0
- 11 semigraphic character set - G1
- 12 extended character set - G2
- 13 control code character set - G3

50      neutral (characters are written without affecting the existing graphic rendition).

All other parameter values are ignored.

#### 6.2.77 SI - Shift In

6.2.77

Representation: <OF>

Characters subsequently received will be displayed from the standard character set.

#### 6.2.78 SL - Scroll Left

6.2.78

Representation: CSI p1 <20><40>

Default value: 1.

The displayed portion of a multiple-page buffer is moved by p1 character positions such that the displayed data appear to move to the left.

The SL is dropped, if the roll/page mode switch is set to PAGE.

Affected by switch: Roll/page mode.

#### 6.2.79 SM - Set Mode

6.2.79

Representation: CSI p1;...;pn <68>

Default value: None.

SM sets one or more mode switches in the terminal. Each mode switch is specified by a numeric value.

Parameter values:

1      Guarded area transfer mode

2 Keyboard action mode  
3 Control representation mode  
4 Insertion - replacement mode  
5 Status report transfer mode  
6 Erasure mode  
7 Vertical editing mode  
8 (reserved for future standardization)  
9 (reserved for future standardization)  
10 Horizontal editing mode  
11 Positioning unit mode  
12 Send/receive mode  
13 Format effector action mode  
14 Format effector transfer mode  
15 Multiple area transfer mode  
16 Transfer termination mode  
17 Selected area transfer mode  
18 Tabulation stop mode  
19 Editing boundary mode  
20 (reserved for future standardization)  
21 Graphic rendition combination mode  
  
31 Beginning of line wrap  
32 Cursor return  
  
36 End of line wrap  
  
39 Lines per page  
  
47 Roll/page mode  
54 Margin bell  
69 Printer mode  
77 Suppress trailing spaces  
80 Selected Area Visible Mode  
81 Repeat Direction  
95 Modified area transfer mode

99 Echo

6.2.80 SO - Shift Out

6.2.80

Representation: &lt;0E&gt;

Characters subsequently received will be displayed from the semigraphic character set.

6.2.81 SPA - Start of Protected Area

6.2.81

Representation: &lt;96&gt; or ESC &lt;56&gt;

SPA indicates that the active position is the first of a string of character positions, the contents of which are protected against manual alteration and are guarded against transmission. The end of this string is indicated by END OF PROTECTED AREA (EPA) or a DAQ.

6.2.82 SPI - Spacing Increment

6.2.82

Representation: CSI p1,p2 &lt;20&gt;&lt;47&gt;

Default value: None

Ignored.

6.2.83 SR - Scroll Right

6.2.83

Representation: CSI p1 &lt;20&gt;&lt;41&gt;

Default value: 1.

The displayed portion of a multiple-page buffer is moved by p1 character positions such that the displayed data appear to move to the right.

The SR is ignored, if the roll/page mode switch is set to PAGE.

Affected by switch: Roll/page mode.

6.2.84 SS2 - Single Shift 2

6.2.84

Representation: <8E> or ESC <4E>

SS2 specifies that the next received character is to be displayed from the extended character set. If the next received character is not within the range <20> to <7E>, both the SS2 and the next received character will be ignored.

6.2.85 SS3 - Single Shift 3

6.2.85

Representation: <8F> or ESC <4F>

SS3 specifies that next received character is to be displayed from the control code character set. If the next received character is not within the range <20> to <3F>, both the SS3 and the next received character will be ignored.

6.2.86 SSA - Start of Selected Area

6.2.86

Representation: <86> or ESC <46>

SSA indicates that the active position is the first of a string of character positions, the contents of which are eligible to be transmitted in the form of a data stream or transferred to an auxiliary input/output device. The end of this string is indicated by END OF SELECTED AREA (ESA) or by the start of another selected area (SSA).

If selected area transfer mode is select, only selected areas are eligible for transmission.

If the selected area visible mode is ON the position is displayed in a special graphic rendition, giving it as a shadow pattern (i.e. it may be shown together with a graphic character) in the position.

Affected by switch: Selected area visible mode.

6.2.87 SSU - Select Size Unit

6.2.87

Representation: CSI pl;...;pn <20><49>

Default value: None

Ignored.

6.2.88 ST - String Terminator

6.2.88

Representation: <9C> or ESC <5C>

ST is the closing delimiter of a string opened by APPLICATION PROGRAM COMMAND (APC), DEVICE CONTROL STRING (DCS), OPERATING SYSTEM COMMAND (OSC), or PRIVACY MESSAGE (PM).

6.2.89 STS - Set Transmission State

6.2.89

Representation: <93> or ESC <53>

STS causes transmission of data from the terminal to the host computer. The amount of data is dependent on the given switches, for further details confer chapter 8.

Affected by switches:

- guarded area transfer mode
- multiple area transfer mode
- selected area transfer mode
- transfer termination mode
- suppress trailing spaces
- modified area transfer mode
- format effector transfer mode

6.2.90 SU - Scroll Up

6.2.90

Representation: CSI pl <53>

Default value: 1.

The displayed portion of a multiple-page buffer is moved by pl lines such that the displayed data appear to move up.

Affected by switches: Roll/page mode.

SU is ignored, if the roll/page mode switch is set to PAGE.

#### 6.2.91 TBC - Tabulation Clear

6.2.91

Representation: CSI pl <67>

Default value: 0

TBC is a format effector which causes one or more tabulation stops to be cleared, depending on the parameter value:

- 0 clear the horizontal tabulation stop at the active position
- 2 clear all horizontal tabulation stops at the active line
- 3 clear all horizontal tabulation stops

All other parameter values are ignored.

In the case of parameter values 0 or 2, when horizontal tabulation stops are cleared, the number of lines affected depends on the setting of the TABULATION STOP MODE.

Affected by switch: Tabulation stop mode.

#### 6.2.92 TSS - Thin Space Specification

6.2.92

Representation: CSI pl <20><45>

Ignored.

#### 6.2.93 VPA - Vertical Position Absolute.

6.2.93

Representation: CSI pl <64>

Default value: 1.

VPA is a format effector which causes the active

position to be moved to the corresponding horizontal position at vertical position pl.

If pl is zero the active position will be at the first data line.

If pl is greater than the number of the last data line, the active position will be at the last data line.

If format effector action mode is STORE the VPA is stored as a graphic.

Affected by switch: Format effector action mode.

#### 6.2.94 VPB - Vertical Position Backward

6.2.94

Representation: CSI pl <6B>

Default value: 1.

VPB is a format effector which is stored (dependant on format effector action mode) or executed as a CUU.

Affected by switches: Format effector action mode.  
Control representation mode.

#### 6.2.95 VPR - Vertical Position Relative

6.2.95

Representation: CSI pl <65>

Default value: 1.

VPR is a format effector which is stored (dependant on format effector action mode) or executed as a CUD.

Affected by switches: Format effector action mode.  
Control representation mode.

6.2.96 VTS - Vertical Tabulation Set

6.2.96

Representation: &lt;8A&gt; or ESC &lt;4A&gt;

Ignored.

### 6.3 Summary of Received Code Sequences

6.3

Summary of accepted CO codes

| ! x !  | 0/x                                | ! | 1/x                               | ! |
|--------|------------------------------------|---|-----------------------------------|---|
| ! 0 !  | NUL                                | ! | DLE                               | ! |
| ! !    | ignored                            | ! | ignored                           | ! |
| ! 1 !  | SOH                                | ! | DC1                               | ! |
| ! !    | ignored                            | ! | XON ignored                       | ! |
| ! 2 !  | STX                                | ! | DC2                               | ! |
| ! !    | ignored                            | ! | ignored                           | ! |
| ! 3 !  | ETX                                | ! | DC3                               | ! |
| ! !    | ignored                            | ! | XOFF ignored                      | ! |
| ! 4 !  | EOT                                | ! | DC4                               | ! |
| ! !    | ignored                            | ! | ignored                           | ! |
| ! 5 !  | ENQ request answer<br>back message | ! | NAC                               | ! |
| ! !    |                                    | ! | ignored                           | ! |
| ! 6 !  | ACK                                | ! | SYN                               | ! |
| ! !    | ignored                            | ! | ignored                           | ! |
| ! 7 !  | BEL sound audible alarm            | ! | ETB                               | ! |
| ! !    |                                    | ! | ignored                           | ! |
| ! 8 !  | BS back space                      | ! | CAN                               | ! |
| ! !    |                                    | ! | ignored                           | ! |
| ! 9 !  | HT horizontal<br>tabulation        | ! | EM                                | ! |
| ! !    |                                    | ! | ignored                           | ! |
| ! 10 ! | LF line feed                       | ! | SUB                               | ! |
| ! !    |                                    | ! | ignored                           | ! |
| ! 11 ! | VT                                 | ! | ESC escape sequence<br>introducer | ! |
| ! !    | ignored                            | ! |                                   | ! |
| ! 12 ! | FF                                 | ! | FS                                | ! |
| ! !    | ignored                            | ! | ignored                           | ! |
| ! 13 ! | CR cursor return                   | ! | GS                                | ! |
| ! !    |                                    | ! | ignored                           | ! |
| ! 14 ! | SO shift out                       | ! | RS                                | ! |
| ! !    |                                    | ! | ignored                           | ! |
| ! 15 ! | SI shift in                        | ! | US                                | ! |
| ! !    |                                    | ! | ignored                           | ! |

Summary of accepted C1 codes

| ! x ! | 8/x or ESC 4/x          | ! 9/x or ESC 5/x         | ! |
|-------|-------------------------|--------------------------|---|
| ! 0 ! | not standard            | ! DCS device control     | ! |
| ! !   |                         | ! string                 | ! |
| ! 1 ! | not standard            | ! PU1 clear SSA          | ! |
| ! !   |                         | ! !                      | ! |
| ! 2 ! | not standard            | ! PU2 clear ESA          | ! |
| ! !   |                         | ! !                      | ! |
| ! 3 ! | not standard            | ! STS set transmission   | ! |
| ! !   |                         | ! state                  | ! |
| ! 4 ! | IND index               | ! CCH                    | ! |
| ! !   |                         | ! ignored                | ! |
| ! 5 ! | NEL next line           | ! MW message waiting     | ! |
| ! !   |                         | ! !                      | ! |
| ! 6 ! | SSA start selected area | ! SPA start protected    | ! |
| ! !   |                         | ! area                   | ! |
| ! 7 ! | ESA end selected area   | ! EPA end protected area | ! |
| ! !   |                         | ! !                      | ! |
| ! 8 ! | HTS horizontal          | ! not standard           | ! |
| ! !   | tabulation set          | ! !                      | ! |
| ! 9 ! | HTJ                     | ! not standard           | ! |
| ! !   | ignored                 | ! !                      | ! |
| !10 ! | VTS                     | ! not standard           | ! |
| ! !   | ignored                 | ! !                      | ! |
| !11 ! | PLD                     | ! CSI control sequence   | ! |
| ! !   | ignored                 | ! introducer             | ! |
| !12 ! | PLU                     | ! ST string              | ! |
| ! !   | ignored                 | ! terminator             | ! |
| !13 ! | RI reverse              | ! OSC operating system   | ! |
| ! !   | index                   | ! command                | ! |
| !14 ! | SS2 single shift 2      | ! PM private message     | ! |
| ! !   |                         | ! !                      | ! |
| !15 ! | SS3 single shift 3      | ! APC application        | ! |
| ! !   |                         | ! program command        | ! |

Summary of accepted CSI sequences without intermediates

\*) Not defined in standard.

| x       | 4/x                        | 5/x                       | 6/x                              | 7/x |
|---------|----------------------------|---------------------------|----------------------------------|-----|
| 0       | ICH Insert Character       | DCH Delete Character      | HPA Horizontal position absolute | *)  |
| 1       | CUU Cursor Up              | SEE Select editing extent | HPR Horizontal position relative | *)  |
| 2       | CUD Cursor Down            | CPR CPR (not used)        | REP Repeat                       | *)  |
| 3       | CUF Cursor Forward         | SU Scroll Up              | DA Device attribute req.         | *)  |
| 4       | CUB Cursor Backward        | SD Scroll Down            | VPA Vertical pos. abs.           | *)  |
| 5       | CNL Cursor Next line       | NP Next page              | VPR Vertical position relative   | *)  |
| 6       | CPL Cursor previous line   | PP Prev. page             | HVP Horizontal and vertical pos. | *)  |
| 7       | CHA Cursor horizontal abs. | CTC Cursor tab control    | TBC Tabulation clear             | *)  |
| 8       | CUP Cursor position        | ECH Erase character       | SM Set mode                      | *)  |
| 9       | CHT Cursor horizontal tab  | CVT (not used)            | MC Media copy                    | *)  |
| 10<br>A | ED Erase in display        | CBT Cursor backward tab   | HPB Horizontal position backward | *)  |
| 11<br>B | EL Erase in line           | not standard              | VPB Vertical position backward   | *)  |
| 12<br>C | IL Insert line             | not standard              | RM Reset mode                    | *)  |
| 13<br>D | DL Delete line             | not standard              | SGR Select graph.rend.           | *)  |
| 14<br>E | EF Erase in field          | not standard              | DSR Device status rep.           | *)  |
| 15<br>F | EA Erase in area           | not standard              | DAQ Define area qualific.        | *)  |

Summary of Accepted CSI Sequences with <20> as an  
Intermediate

| x  | 4/x                                    | 5/x                             | 6/x                    |
|----|----------------------------------------|---------------------------------|------------------------|
| 0  | SL Scroll left                         | PPA Page position<br>P absolute | not<br>standard        |
| 1  | SR Scroll right<br>A                   | PPR Page position<br>Q relative | not<br>a standard      |
| 2  | GSM Ignored<br>B                       | PPB Page position<br>R backward | not<br>b standard      |
| 3  | GSS Ignored<br>C                       | S not<br>standard               | not<br>c standard      |
| 4  | FNT Ignored<br>D                       | T not<br>standard               | not<br>d standard      |
| 5  | TSS Ignored<br>E                       | U not<br>standard               | not<br>e standard      |
| 6  | JFY Ignored<br>F                       | V not<br>standard               | not<br>f standard      |
| 7  | SPI Ignored<br>G                       | W not<br>standard               | not<br>g standard      |
| 8  | QUAD Ignored<br>H                      | X not<br>standard               | not<br>h standard      |
| 9  | SSU Ignored<br>I                       | Y not<br>standard               | not<br>i standard      |
| 10 | J not<br>standard                      | Z not<br>standard               | standard<br>j standard |
| 11 | K not<br>standard                      | not<br>standard                 | not<br>k standard      |
| 12 | L not<br>standard                      | not<br>standard                 | not<br>l standard      |
| 13 | M not<br>standard                      | not<br>standard                 | not<br>m standard      |
| 14 | HTSA Horizontal tab.<br>N set absolute | not<br>standard                 | not<br>n standard      |
| 15 | IDCS Ignored<br>O                      | not<br>standard                 | not<br>o standard      |

Summary of Escape F's Sequences

| x | 6/x                             |
|---|---------------------------------|
| 0 | DMI Ignored                     |
| 1 | INT Interrupt<br>a              |
| 2 | EMI<br>b Ignored                |
| 3 | RIS Reset to<br>c initial state |

## 6.4 Transmitted Data and Code Sequences

6.4

Data characters and control codes transmitted from the terminal will be within the range <00> to <9F>. The codes from <00> to <7F> will be transmitted as they are, while the codes from <80> to <9F> are C1-codes that will be transmitted as follows:

- If the switch TCL (transmission code length) is set to 8bit, the C1-code will be transmitted as it is.
- If the switch TCL is set to 7bit, the C1-code will be transmitted as an escape sequence in the following way:  
First the ESC <1B> code is transmitted, then the C1-code will be converted to a code from <40> to <5F>, (this is done by subtracting <40> from the C1-code) and transmitted.

### 6.4.1 Transmitted Data

6.4.1

All data transmitted from the display buffer will be in the range <20> to <7F>. Character codes outside this range are transformed into <20> before transmission.

### 6.4.2 Transmitted Code Sequences

6.4.2

APC      Application program command.

Representation: <9F> or ESC <5F>

An existing program command string will be sent at any STS request as the first part of the transmitted data.

The command string is terminated with a ST command.

CPR      Cursor position report.

Representation: CSI p1;p2 <52>

The code sequence is generated on a DSR (with

parameter 6) request to report the current cursor position.

CSI Control sequence introducer.

Representation: <9B> or ESC <5B>

CUB, CUF,...

In simultaneous mode these standard ECMA-48 control sequences are transmitted to the host computer, whenever the corresponding cursor movement keys are depressed.

DA Device attribute.

Representation: CSI p1 <63>

This code is generated on request to report the RC851 terminal type converted from a byte to a three digit decimal number in ascii representation. The request is done by a default DA code.

DCS Device control string.

Representation: <90> or ESC <50>

DCS is the opening delimiter of a control string containing the version number in ascii representation (like the terminal type). The control string is terminated by a ST.

DSR Device status report.

Representation: CSI p1 <6E>

A DSR code sequence is generated on either a DSR (with parameter 5) or a MW request.

p1 may have the following values:

- 0: ready
- 1: busy, a DSR (with parameter 0) will follow later.

ESC Escape

Representation: <1B>

ETB End of test block.

Representation: <17>

All transmission of data requested from the display buffer are terminated with an ETB.

INT Interrupt.

Representation: ESC <61>

INT indicates a break to the host computer.

MC Media copy.

Representation: CSI pl <69>

Activation of the PRINT key on the keyboard triggers a MC code sequence to the host computer, if the printer mode switch is set to REMOTE.

Parameter value: 0

Affected by switches: Printer mode.

OSC Operating system command.

Representation: <9D> or ESC <5D>

The operator may send off a OSC command to the host computer, see chapter 7.

The command or message will be preceded by the code OSC <9D> and terminated by the code ST <9C>.

The command or the message will consist of characters within the range <20 - 7E>, and it may be up to 80 characters long.

RIS Reset to initial state.

Representation: ESC <63>

A RIS is sent to the host computer at every power up/soft reset of the RC851.

ST String terminator.

Representation: <9C> or ESC <5C>

ST is the terminating delimiter of an APC-, OSC-command, or DCS-command.

US Unit separator.

Representation: <1F>

At the end of the content of an area, a US is transmitted to the host computer (when the contents of the display buffer is requested by a STS code).

#### 6.4.3 Send Activating Character.

6.4.3

Whenever a special character - the send activating character is activated from the keyboard, another specified character, the send request character, is sent to the host computer. For further details refer to the DCS command in section 6.2.

#### 6.4.4 PUSH-keys.

6.4.4

Activation of a push key with type TRANSMIT ONLY will cause the temporary content of the push-key to be sent to the host computer. For further details confer section 7.3.

## 7. OPERATORS GUIDE

7.

This section describes the RC851 keyboard, how to alter soft switches of the terminal, how to program the push-keys and the structure of the terminal status line.

### 7.1 Keyboard

7.1

The keyboard converts keystrokes into 8 bit codes for transmission to the terminal. These character codes are divided into four categories:

- control characters
- graphic characters
- edit characters
- special function characters

All keys on the keyboard have auto repeat, i.e. they cause repeated character code transmission when held down long enough.

Any character code may be entered from the keyboard by holding the ctrl key down while typing the wanted decimal code.

|         |   |          |           |           |
|---------|---|----------|-----------|-----------|
| IND     | ↑ | LINE UD  | SLET FELT | BREAK     |
| ←       | ↙ | →        | SLET LINE | OSC ST    |
| TEGN UD | ↓ | LINE IND | SLET SIDE | MENU      |
| ←       | 7 | 8        | 9         | S E N D 2 |
| -       | 4 | 5        | 6         |           |
| ]       | 1 | 2        | 3         | ↑         |
|         | 0 |          | •         |           |

|              |     |     |      |     |     |     |      |      |      |      |       |              |
|--------------|-----|-----|------|-----|-----|-----|------|------|------|------|-------|--------------|
| SELECT CLEAR | PA1 | PA2 | PA3  | PA4 | PA5 | USM | PF10 | PF11 | PF12 | PF13 | PF14  | REPEAT PRINT |
| ! 1          | " 2 | # 3 | \$ 4 | % 5 | & 6 | ' 7 | ( 8  | ) 9  | - 0  | =    | ~ ↑   | ← →          |
| ESC          | Q   | W   | E    | R   | T   | Y   | U    | I    | O    | P    | A     | +            |
| CTRL LOCK    | A   | S   | D    | F   | G   | H   | J    | K    | L    | Z    | Ø     | *            |
| SHIFT        | @   | Z   | X    | C   | V   | B   | N    | M    | <    | >    | ? /   | SHIFT        |
| RESET        |     |     |      |     |     |     |      |      |      |      | SEND1 |              |

see tab 6  
also, doc

7.1.1 Control Character Codes

7.1.1

By pushing keys in typewriter area simultaneously with the CTRL key, all codes in the range <00>-<1F> may be generated.

|     |      |                |               |
|-----|------|----------------|---------------|
| NUL | <00> | CTRL ~, CTRL @ | CTRL spacebar |
| SOH | <01> | CTRL A, CTRL a |               |
| STX | <02> | CTRL B, CTRL b |               |
| ETX | <03> | CTRL C, CTRL c |               |
| EOT | <04> | CTRL D, CTRL d |               |
| ENQ | <05> | CTRL E, CTRL e |               |
| ACK | <06> | CTRL F, CTRL f |               |
| BEL | <07> | CTRL G, CTRL g |               |
| BS  | <08> | CTRL H, CTRL h |               |
| HT  | <09> | CTRL I, CTRL i |               |
| LF  | <0A> | CTRL J, CTRL j |               |
| VT  | <0B> | CTRL K, CTRL k |               |
| FF  | <0C> | CTRL L, CTRL l |               |
| CR  | <0D> | CTRL M, CTRL m |               |
| SO  | <0E> | CTRL N, CTRL n |               |
| SI  | <0F> | CTRL O, CTRL o |               |
| DLE | <10> | CTRL P, CTRL p |               |
| DC1 | <11> | CTRL Q, CTRL q |               |
| DC2 | <12> | CTRL R, CTRL r |               |
| DC3 | <13> | CTRL S, CTRL s |               |
| DC4 | <14> | CTRL T, CTRL t |               |
| NAC | <15> | CTRL U, CTRL u |               |
| SYN | <16> | CTRL V, CTRL v |               |
| ETB | <17> | CTRL W, CTRL w |               |
| CAN | <18> | CTRL X, CTRL x |               |
| EM  | <19> | CTRL Y, CTRL y |               |
| SUB | <1A> | CTRL Z, CTRL z |               |
| ESC | <1B> | CTRL Æ, CTRL æ |               |
| FS  | <1C> | CTRL Ø, CTRL ø |               |
| GS  | <1D> | CTRL Å, CTRL å |               |
| RS  | <1E> | CTRL , CTRL ~  |               |
| US  | <1F> | CTRL _         |               |

In simultaneous mode these codes are sent to the host computer, whereas they are executed in monitor mode.

7.1.2 Graphic Character Codes

7.1.2

The terminal uses standard ISO 7 bit codes for these keys.

A table on symbol to transmitted code for these keys is given below.

|         |        |        |
|---------|--------|--------|
| <20>    | @ <40> | ~ <60> |
| ! <21>  | A <41> | a <61> |
| " <22>  | B <42> | b <62> |
| * <23>  | C <43> | c <63> |
| \$ <24> | D <44> | d <64> |
| % <25>  | E <45> | e <65> |
| <26>    | F <46> | f <66> |
| - <27>  | G <47> | g <67> |
| ( <28>  | H <48> | h <68> |
| ) <29>  | I <49> | i <69> |
| * <2A>  | J <4A> | j <6A> |
| + <2B>  | K <4B> | k <6B> |
| , <2C>  | L <4C> | l <6C> |
| - <2D>  | M <4D> | m <6D> |
| . <2E>  | N <4E> | n <6E> |
| / <2F>  | O <4F> | o <6F> |
| 0 <30>  | P <50> | p <70> |
| 1 <31>  | Q <51> | q <71> |
| 2 <32>  | R <52> | r <72> |
| 3 <33>  | S <53> | s <73> |
| 4 <34>  | T <54> | t <74> |
| 5 <35>  | U <55> | u <75> |
| 6 <36>  | V <56> | v <76> |
| 7 <37>  | W <57> | w <77> |
| 8 <38>  | X <58> | x <78> |
| 9 <39>  | Y <59> | y <79> |
| : <3A>  | Z <5A> | z <7A> |
| ; <3B>  | Æ <5B> | æ <7B> |
| < <3C>  | Ø <5C> | ø <7C> |
| = <3D>  | Å <5D> | å <7D> |
| > <3E>  | ↑ <5E> | ~ <7E> |
| ? <3F>  | — <5F> |        |

7.1.3 Edit Character Codes

7.1.3

These codes are intended to provide (local) editing functions on the displayed amount of data. An edit key pressed while CTRL is held down is ignored.

**IND:**

The IND key lamp set indicates that the INSERTION/REPLACEMENT mode is INSERT, otherwise the mode is REPLACE. Each depression of the key will alter the mode between INSERT and REPLACE.

**TEGN UD:**

The key has the effect of a default DCH (6.2.22). Shift does not affect the key.

**LINIE IND:**

The key has the effect of a default IL (6.2.50).

**LINIE IND (shifted):**

Extends the selected area to which ap belongs, by one line. If the roll/page mode switch is PAGE the key is blind.

**LINIE UD:**

The key has the effect of a default DL (6.2.24), it is not affected by shift.

**↑ (cursor up):**

The key has the effect of a default CUU (6.2.18), it is not affected by shift.

**← (cursor backward)**

The key has the effect of a default CUB (6.2.14). Not affected by shift.

**→ (cursor forward):**

The key has the effect of a default CUF (6.2.16). Not affected by shift.

**↓ (cursor down):**

The key has the effect of a default CUD (6.2.15). Not affected by shift.

**↖ (cursor home):**

The key has the effect of a default CUP (6.2.17). Not affected by shift.

**⏴ (cursor next line):**

The key has the effect of a CR (6.2.11). Not affected by shift.

→ (tab):

The key has the effect of a default CHT (6.2.7).

← (back tab):

The key has the effect of a default CBT (6.2.4). Not affected by shift.

SLET FELT:

The key has the effect of a default EF (6.2.30). Another directly succeeding pressure has the effect of an EF with parameter 1.

SLET FELT (shifted):

Has the effect of an EF with parameter 2.

SLET LINIE:

The key has the effect of a default EL (6.2.31). Another directly succeeding pressure has the effect of an EL with parameter 1.

SLET LINIE (shifted):

Has the effect of an EL with parameter 2.

SLET SIDE:

The key has the effect of a default ED (6.2.29). Another directly succeeding pressure has the effect of an ED with parameter 1.

SLET SIDE (shifted):

Has the effect of an ED with parameter 2.

#### 7.1.4 Special Function Characters

7.1.4

The function of these keys are not defined by the ECMA-48 standard.

LOCK:

The lock key is an "alpha lock". Each depression of the key alters the key lamp between being on and off. When the LOCK switch is LOCK the lock key lamp is set on power up.

PRINT:

The effect of the key depends on the PRINTER MODE switch. When the value of this switch is LOCAL a hard copy of the entire display is made on the local printer, otherwise a MC is sent to the host computer.

**PRINT KEY LAMP:**

The print key lamp is set whenever the keyboard is disabled.

**SELECT:**

The SELECT key lamp set indicates that the terminal is online otherwise the terminal is local. On power up the terminal goes online. First time the key is pressed the terminal goes in the local state and the key lamp is cleared. Next time the key is pressed the terminal goes online and so on. When the ONLINE switch is ONLINE the terminal stays online and the SELECT key is ignored. when the terminal is in the local state it will perform local echo, irrespective of the value of the echo switch.

**REPEAT:**

This key causes repetition of a key held down together with it. The repetition of the key is continued until another key is depressed or the repeat key is released. If the repeat key is depressed again within one second the repetition of the key code is continued.

The repeat key does not apply to the following keys:  
 shift, ctrl, lock, selct, usm, print, break,  
 osc, menu, reset, esc.

The repetition is stopped at activation of one of these characters.

**RESET (ctrl):**

This key only works in connection with the CTRL key. It causes a soft reset of the RC851 terminal. The Reset key depressed without CTRL has the effect of a SHIFT.

**OSC (shift OSC/ST):**

This key (shifted) is the opening delimiter of an operating system command. It causes the following action to be performed:

1. The cursor position is saved.
2. The contents of line 25 is saved.
3. The cursor is placed in the first position of line 25..

Now the terminal is ready to receive the operating system command. Only character codes in the interval <20> to <7E> are allowed, others are ignored. The

cursor cannot leave line 25 without finishing the operating system command (by a ST) or regretting it (by ctrl OSC/ST).

ST (OSC/ST unshifted):

This key gives the terminator of an operating system command, therefore it is only acted upon when pressed after the OSC (opening delimiter).

It causes the following actions to be performed:

1. The contents of line 25 is transmitted to the host computer as an operating system command i.e. starting by an OSC and terminated by a ST.
2. The former contents of line 25 is re-established.
3. The former position of the cursor is re-established.

USM:

The key lamp set indicates that an unsolicited message is pending. This message may either have been sent from the host computer (in a privacy message) or have been generated internally by the terminal as an error indicator.

When the key is pressed the following actions are taken:

1. The key lamp is cleared unless another USM is pending.
2. The contents of line 25 is saved.
3. The message is shown in line 25.

Next time the key is pressed the message is cleared and line 25 is re-established.

BREAK:

This key causes an INT to be sent to the host computer.

CLEAR:

Erases unprotected areas on the screen and performs a "cursor home".

CLEAR (shifted):

Erases the screen and the memory i.e. area qualifications and selected areas. Sets the current graphic rendition to normal, sets the current alphabet to G0 and performs a cursor home.

**MENU (shifted):**

This key causes a menu picture for altering of the standard mode switches to be set up. Meanwhile a copy of the original picture is saved. A further description of how to alter the soft switches is given in section 7.2.

**MENU (ctrl):**

This key combination causes the third menu picture, which contains soft switches with more than two values, to be set up.

**MENU (ctrl + shift):**

A depression of this key makes the terminal enter the special state for push-key programming.

**SEND1, SEND2:**

The two send keys are special PUSH-keys; they are both loaded with the predefined "send activating character" at power up or reset on terminal. Afterwards their contents may, like other PUSH-keys, be changed (temporary) by either the host computer or the operator. For further details on push-key programming confer section 7.3.

**7.2 Soft Switch Setup**

7.2

The soft switch setup mode is entered by typing SHIFT and MENU on the keyboard.

The first page of switch states is shown.

The setup of soft switches may be left in two ways:

- typing BREAK on the keyboard. The display picture existing before entering the soft switch setup mode is reestablished.
- typing CTRL + SHIFT and MENU or depressing a push-key, thereby entering the push-key programming mode.

### 7.2.1 Layout of Soft Switch Menu

7.2.1

The status of a soft switch is held in one display line.

The first page holds the status of the standard mode switches. The sequence of the switches is according to the number of the switch, see SM in chapter 6.

The next page shows the status of the additional mode switches, and so on.

The third page contains switches with more than two values.

The fourth page shows terminal parameters with values in the range 1...255.

The fifth page gives the release dates of the terminal software and the references on which basis the terminal is designed.

A page forward is performed by depression of the MENU key.

Each switch is represented by a line containing the switch name and two or more value fields.

The value fields have two different formats:

- a list of text items giving the possible values for the switch. The currently temporary switch value is underlined, and the currently permanent switch value is shown in inverse video.
- Two areas containing numeric values, and two open areas.

The first area is open for keying in a numeric value.

The second area is underlined and shows the currently temporary numeric value of the switch.

The third area is open for keying a (permanent) numeric value.

The fourth area is shown in inverse video giving the currently permanent numeric value of the switch.

7.2.2 Altering a Numeric Switch

7.2.2

Enter the value area for the wanted numeric switch by using the keys →, ↘, ↓, ↑, ↙, →, or ←

Key in a numeric value in the range 1..255 in the open area, for temporary or permanent value.

To make it temporary, type T or t.

To make it permanent, type P or p.

If the number is in the range 1..255 it is transferred to area no. two/four and the value of the switch is changed.

7.2.3 Altering Other Switches

7.2.3

Enter the wanted text area for the wanted switch.

To make it temporary, type T or t.

To make it permanent, type P or p.

7.2.4 Resetting all Switches

7.2.4

All the existing switches may be reset to their default values. This is initiated by typing CTRL and RESET followed by one of the following characters:

P or p. The default values of all switches are saved in Non-Volatile memory.

T or t. The temporary values of all switches are set to their default values.

The first page of switches will be shown when the required action has been performed by the RC851.

7.3 Push Key Programming

7.3

The PUSH-keys give the user the ability to simulate a sequence of keystrokes by pushing a single key. The PUSH-keys may be used for text strings or control code sequences.

A PUSH-key may be of three types:

- transmit only  
On activation of such a PUSH-key the whole contents of the PUSH-key is sent to the host computer.
- local  
The activation of such a PUSH-key will only have local effect, no characters will be sent to the host computer even if specified.
- normal  
The activation of a normal PUSH-key may have local effect and characters may be sent to the host computer.

Each PUSH-key has a title associated. The title is used to explain the effect of the PUSH-key activation.

The title of a PUSH-key may at any time be shown to the operator by typing CTRL and the PUSH-key. The title will be shown on the last data line, which will be reestablished, when USM is depressed. Typing CTRL and the PUSH-key will not activate the PUSH-key.

#### 7.3.1 Entering/leaving PUSH-key Programming

7.3.1

Entering the PUSH-key programming mode is done by keying CTRL + SHIFT and MENU.

The setup of PUSH-key programming mode may be left in two ways:

- typing BREAK  
The display picture existing before entering the PUSH-key programming mode is reestablished.
- typing SHIFT/CTRL and MENU will enter the switch setup mode.

7.3.2 Layout of PUSH-key Menu

7.3.2

The PUSH-key menu will hold the status for one PUSH-key, which will be shown by activating the PUSH-key. The PUSH-key menu have the following format:

Nr.: xx    key-name    Type: NORMAL   TRANSMIT   LOCAL

TEMPORARY

Title: \_\_\_\_\_

Value: \_\_\_\_\_

Active Position Code

Nr. gives the number and the key top text of the PUSH-key. This field can not be changed by the operator.

Type gives the type of the PUSH-key:

- TRANSMIT
- LOCAL
- NORMAL

The type can be changed by the operator by typing T(or t) in the area containing the wanted type.

Title gives an explanation of the PUSH-key. The title can be changed by the operator. Only alphanumeric keys can be used.

Temporary value is the current temporary contents of the PUSH-key. The contents can be changed by the operator, see section 7.3.3.

$\frac{c}{e}$  Permanent value is the current permanent contents of the PUSH-key. The contents can be changed by the operator, see section 7.3.3.

Active position code gives the decimal code for the character at the cursor position. The code can not be explicitly changed by the operator.

### 7.3.3 Altering the Contents of a PUSH-key

7.3.3

The contents of a PUSH-key is shown in normal video using the character generator directly, refer to an appendix for the outlook of the character generator.

The typewriter area is the primary medium for programming PUSH-keys. Characters entered in this area will appear as normal characters on the screen. A PUSH-key string is terminated by the first trailing space or by the end of the field. The first trailing space is not considered as part of the string.

Control codes from the CO-set may be entered by using the typewriter keys with CTRL.

Other characters can be entered by holding the CTRL key down while typing the wanted decimal code.

In fact all characters can be entered in this way.

The CTRL key must be released for each entering of a decimal code.

**8.      TRANSFER MODES**

8.

This chapter concerns the modes affecting the transmitted data stream. When the host computer sends a SET TRANSMIT STATE (STS) to the terminal, the amount of actually transmitted data depends on the transfer modes.

The basic transfer modes are:

- guarded area transfer mode
- selected area transfer mode
- multiple area transfer mode
- transfer termination mode

Other modes affecting the transmitted data stream are:

- format effector transfer mode
- modified area transfer mode
- trailing spaces suppression

If the selected area transfer mode is SELECT only selected areas are considered for transmission; guarded/unguarded areas ignored.

If the selected area transfer mode is ALL only guarded areas are considered at transmission; and all occurrences of SSA and ESA are ignored.

### A. PREDEFINED PUSH-KEYS

A.

Notation:

ECMA-48 control functions are enclosed in quotation marks, which are not part of the push-key value. When a number is in <>, it refers to a character code.

```
PAl:                               no.:    2  
Title: OP tab  
Value: "CHA59"
```

```

PAL (shift):          no.: 12
Title: OP blad
Value: "CHA59"        <4>

```

```
PA2:                                no.: 3
Title: E fortsæt
Value: "CUP"fo<4>
```

```
PA2 (shift):          no.: 13
Title: E tilbage
Value: "CUP"tb<4>
```

```
PA3: no.: 4
Title: E ok
Value: "CUP"ok<4>
```

```
PA3 (shift):      no.: 14
Title: E frem
Value: "CUP"fr<4>
```

```
PA4:                               no.: 5
Title: E opdater
Value: "CUP"op<4>
```

```
PA5:                               no.: 6
Title: Send Page Until Cursor
Value: "SM17"<4>
```

```
PA5 (shift):          no.: 16
Title: Send Page
Value: "SM16;17;77"<4>
```

PF10: no.: 7  
 Title: Reset Mode: ~~Ctrl Rep~~, ~~Send Rec~~ *Send Rec, Ctrl*  
 Value: "RM3" "RM12"

PF10 (shift): no.: 17  
 Title: Set Mode: ~~Send Rec~~, ~~CTRL Rep~~ *Send Rec, Ctrl*  
 Value: "SM12" "SM3"

PF11: no.: 8  
 Title: Insert Blank Line  
 Value: "CHA" "ICH80" *→ PF11: Insert*

PF12: no.: 9  
 Title: Start Selected Area  
 Value: "SSA"

PF12 (shift): no.: 19  
 Title: End Selected Area  
 Value: "ESA"

PF13: no.: 10  
 Title: Delete Previous Start Selected  
 Value: "PU1"

PF13 (shift): no.: 20  
 Title: Delete Next End Selected  
 Value: "PU2"

PF14: no.: 11  
 Title: Send Selected Area  
 Value: "SM16;77"<4>

PF14 (shift): no.: 21  
 Title: Send First Selected Area  
 Value: "CUP" "SM16;77"<4>

PF11:

*no. 11*

*PF11: Insert*

**B. NEGATIVE LIST FOR RC851 ECMA48 DISPLAY TERMINAL**

B.

The following list gives the facilities from the reference manual, which are not implemented in the first version of the ECMA-48 terminal.

- 3.2 The character image output  
- more pages
- 4.2 Editing boundary mode  
Fixed = display
- 4.4 Format effector action mode  
Fixed = execute
- 4.5 Format effector transfer mode  
Fixed = exclude
- 4.15 Status report transfer mode  
Fixed = normal
- 4.16 Tabulation stop mode  
Fixed = single
- 5.17 Lines per page switch  
Fixed = 25 lines
- 5.18 Margin bell switch  
Fixed = off
- ~~5.33 Timeout switch  
Fixed = on~~

- 6.2.1 APC
- 6.2.21 DAQ - params 5 and 10 (right, left justification)
- 6.2.26 DSR
- 6.2.46 HTSA
- 6.2.55 MC - params 4 and 5 (relay printing)
- 6.2.58 NP
- 6.2.63 PP
- 6.2.64 PPA
- 6.2.65 PPB
- 6.2.66 PPR
- 6.2.74 SD
- 6.2.78 SL
- 6.2.83 SR
- 6.2.90 SU
- 6.2.91 TBC

### 7.3.2 Layout of PUSH-key Menu

- Permanent values

**C.      CONTENTS OF THE RC851 CHARACTER GENERATOR**

C.

Appendix A describes the contents of the RC851 character generator and the way, in which the host computer obtains access to the dot matrices given.

The characters are divided into four groups:

- control characters (C0)  
    fourth character set (G3)
- standard character set (G0)
- second character set (G1)  
    extension of the standard character set.
- third character set (G2)  
    semigraphic character set
- third character set (third)  
    extension of the standard character set.

For each character in the character generator,  
its number in the character generator,  
the group membership described above,  
its code within the group,  
and its 9x16 dot matrix is given.

## 0 (ctrl/0)

```

1:
2:  0      0
3:  0      0
4:  0 0    0
5:  0  0   0
6:  0      0 0
7:  0      0
8:  0      0
9:
10:  0
11:  0
12:  0
13:  0
14:  0
15:  0 0 0 0 0
16:
1 2 3 4 5 6 7 8 9

```

## 1 (ctrl/1)

```

1:
2:  0 0 0
3:  0      0
4:  0
5:  0 0 0
6:      0
7:  0      0
8:  0 0 0
9:      0      0
10:  0      0
11:  0      0
12:  0 0 0 0 0
13:  0      0
14:  0      0
15:  0      0
16:
1 2 3 4 5 6 7 8 9

```

## 2 (ctrl/2)

```

1:
2:  0 0 0
3:  0      0
4:  0
5:  0 0 0
6:      0
7:  0      0
8:  0 0 0
9:      0      0
10:  0      0
11:      0  0
12:      0
13:      0  0
14:      0      0
15:      0      0
16:
1 2 3 4 5 6 7 8 9

```

## 3 (ctrl/3)

```

1:
2:  0 0 0 0 0
3:  0
4:  0
5:  0 0 0 0
6:  0
7:  0
8:  0 0 0 0 0
9:      0      0
10:      0      0
11:      0  0
12:      0
13:      0  0
14:      0      0
15:      0      0
16:
1 2 3 4 5 6 7 8 9

```

## 4 (ctrl/4)

```

1:
2:  0 0 0 0 0
3:  0
4:  0
5:  0 0 0 0
6:  0
7:  0
8:  0 0 0 0 0
9:      0 0 0 0 0
10:      0
11:      0
12:      0
13:      0
14:      0
15:      0
16:
1 2 3 4 5 6 7 8 9

```

## 5 (ctrl/5)

```

1:
2:  0 0 0 0 0
3:  0
4:  0
5:  0 0 0 0
6:  0
7:  0
8:  0 0 0 0 0
9:      0 0 0
10:      0      0
11:      0      0
12:      0      0
13:      0  0  0
14:      0      0 0
15:      0 0 0 0
16:
1 2 3 4 5 6 7 8 9

```

## 6 (ctrl/6)

```

1:
2:  0 0 0
3:  0      0
4:  0      0
5:  0 0 0 0 0
6:  0      0
7:  0      0
8:  0      0
9:      0      0
10:      0      0
11:      0  0
12:      0 0
13:      0  0
14:      0      0
15:      0      0
16:
1 2 3 4 5 6 7 8 9

```

## 7 (ctrl/7)

```

1:
2:  0 0 0 0
3:  0      0
4:  0      0
5:  0 0 0 0
6:  0      0
7:  0      0
8:  0 0 0 0
9:      0
10:      0
11:      0
12:      0
13:      0
14:      0
15:      0 0 0 0 0
16:
1 2 3 4 5 6 7 8 9

```

## 8 (ctrl/8)

```

1:
2:  0 0 0 0
3:  0      0
4:  0      0
5:  0 0 0 0
6:  0      0
7:  0      0
8:  0 0 0 0
9:      0 0 0
10:      0      0
11:      0
12:      0 0 0
13:      0
14:      0      0
15:      0 0 0
16:
1 2 3 4 5 6 7 8 9

```

## 9 (ctrl/9)

```

1:
2:  0      0
3:  0      0
4:  0      0
5:  0 0 0 0 0
6:  0      0
7:  0      0
8:  0      0
9:      0 0 0 0 0
10:      0
11:      0
12:      0
13:      0
14:      0
15:      0
16:
1 2 3 4 5 6 7 8 9

```

## 10 (ctrl/10)

```

1:
2:  0
3:  0
4:  0
5:  0
6:  0
7:  0
8:  0 0 0 0 0
9:      0 0 0 0 0
10:      0
11:      0
12:      0 0 0 0
13:      0
14:      0
15:      0
16:
1 2 3 4 5 6 7 8 9

```

## 11 (ctrl/11)

```

1:
2:  0      0
3:  0      0
4:  0      0
5:  0      0
6:  0      0
7:  0      0
8:      0
9:      0 0 0 0 0
10:      0
11:      0
12:      0
13:      0
14:      0
15:      0
16:
1 2 3 4 5 6 7 8 9

```

## 12 (ctrl/12)

```

1:
2:  0 0 0 0 0
3:  0
4:  0
5:  0 0 0 0
6:  0
7:  0
8:  0
9:      0 0 0 0 0
10:      0
11:      0
12:      0 0 0 0
13:      0
14:      0
15:      0
16:
1 2 3 4 5 6 7 8 9

```

## 13 (ctrl/13)

```

1:
2:      0 0 0
3:  0      0
4:  0
5:  0
6:  0
7:  0      0
8:      0 0 0
9:      0 0 0 0
10:      0      0
11:      0      0
12:      0 0 0 0
13:      0      0
14:      0      0
15:      0      0
16:
1 2 3 4 5 6 7 8 9

```

## 14 (ctrl/14)

```

1:
2:      0 0 0
3:  0      0
4:  0
5:      0 0 0
6:      0
7:  0      0
8:      0 0 0
9:      0 0 0
10:      0      0
11:      0      0
12:      0      0
13:      0      0
14:      0      0
15:      0 0 0
16:
1 2 3 4 5 6 7 8 9

```

## 15 (ctrl/15)

```

1:
2:      0 0 0
3:  0      0
4:  0
5:      0 0 0
6:      0
7:  0      0
8:      0 0 0
9:      0 0 0
10:      0
11:      0
12:      0
13:      0
14:      0
15:      0 0 0
16:
1 2 3 4 5 6 7 8 9

```

## 16 (ctrl/16)

```

1:
2:  0 0 0 0
3:  0      0
4:  0      0
5:  0      0
6:  0      0
7:  0      0
8:  0 0 0 0
9:      0
10:      0
11:      0
12:      0
13:      0
14:      0
15:      0 0 0 0 0
16:
1 2 3 4 5 6 7 8 9

```

## 17 (ctrl/17)

```

1:
2:  0 0 0 0
3:  0      0
4:  0      0
5:  0      0
6:  0      0
7:  0      0
8:  0 0 0 0
9:      0
10:      0 0
11:      0 0
12:      0
13:      0
14:      0
15:      0
16:
1 2 3 4 5 6 7 8 9

```

## 18 (ctrl/18)

```

1:
2: 0 0 0 0
3: 0      0
4: 0      0
5: 0      0
6: 0      0
7: 0      0
8: 0 0 0 0
9:      0 0 0
10:      0      0
11:      0      0
12:      0
13:      0
14:      0
15:      0 0 0 0 0
16:
1 2 3 4 5 6 7 8 9

```

## 19 (ctrl/19)

```

1:
2: 0 0 0 0
3: 0      0
4: 0      0
5: 0      0
6: 0      0
7: 0      0
8: 0 0 0 0
9:      0 0 0
10:      0      0
11:      0      0
12:      0 0
13:      0      0
14:      0      0
15:      0 0 0
16:
1 2 3 4 5 6 7 8 9

```

## 20 (ctrl/20)

```

1:
2: 0 0 0 0
3: 0      0
4: 0      0
5: 0      0
6: 0      0
7: 0      0
8: 0 0 0 0
9:      0 0
10:      0      0
11:      0      0
12:      0      0
13:      0 0 0 0 0 0
14:      0
15:      0
16:
1 2 3 4 5 6 7 8 9

```

## 21 (ctrl/21)

```

1:
2: 0      0
3: 0      0
4: 0 0      0
5: 0 0      0
6: 0      0 0
7: 0      0
8: 0      0
9:      0 0 0
10:      0      0
11:      0
12:      0
13:      0
14:      0      0
15:      0 0 0
16:
1 2 3 4 5 6 7 8 9

```

## 22 (ctrl/22)

```

1:
2: 0 0 0
3: 0      0
4: 0
5: 0 0 0
6:      0
7: 0      0
8: 0 0 0
9:      0      0
10:      0      0
11:      0 0      0
12:      0      0 0
13:      0      0 0
14:      0      0
15:      0      0
16:
1 2 3 4 5 6 7 8 9

```

## 23 (ctrl/23)

```

1:
2: 0 0 0 0 0
3: 0
4: 0
5: 0 0 0 0
6: 0
7: 0
8: 0 0 0 0 0
9:      0 0 0 0
10:      0      0
11:      0      0
12:      0 0 0 0
13:      0      0
14:      0      0
15:      0 0 0 0
16:
1 2 3 4 5 6 7 8 9

```

## 24 (ctrl/24)

```

1:
2: 0 0 0
3: 0      0
4: 0
5: 0
6: 0
7: 0      0
8: 0 0 0
9:      0      0
10:      0      0
11:      0 0      0
12:      0      0 0
13:      0      0 0
14:      0      0
15:      0      0
16:
1 2 3 4 5 6 7 8 9

```

## 25 (ctrl/25)

```

1:
2: 0 0 0 0 0
3: 0
4: 0
5: 0 0 0 0
6: 0
7: 0
8: 0 0 0 0 0
9:      0      0
10:      0 0      0 0
11:      0      0 0
12:      0      0 0
13:      0      0
14:      0      0
15:      0      0
16:
1 2 3 4 5 6 7 8 9

```

## 26 (ctrl/26)

```

1:
2: 0 0 0
3: 0      0
4: 0
5: 0 0 0
6:      0
7: 0      0
8: 0 0 0
9:      0 0 0 0
10:      0      0
11:      0      0
12:      0 0 0 0
13:      0      0
14:      0      0
15:      0 0 0 0
16:
1 2 3 4 5 6 7 8 9

```

## 27 (ctrl/27)

```

1:
2: 0 0 0 0 0
3: 0
4: 0
5: 0 0 0 0
6: 0
7: 0
8: 0 0 0 0 0
9:      0 0 0
10:      0      0
11:      0
12:      0
13:      0
14:      0      0
15:      0 0 0
16:
1 2 3 4 5 6 7 8 9

```

## 28 (ctrl/28)

```

1:
2: 0 0 0 0 0
3: 0
4: 0
5: 0 0 0 0
6: 0
7: 0
8: 0
9:      0 0 0
10:      0      0
11:      0
12:      0 0 0
13:      0      0
14:      0      0
15:      0 0 0
16:
1 2 3 4 5 6 7 8 9

```

## 29 (ctrl/29)

```

1:
2: 0 0 0
3: 0      0
4: 0
5: 0 0 0 0
6: 0      0
7: 0      0
8: 0 0 0 0
9:      0 0 0
10:      0      0
11:      0
12:      0 0 0
13:      0      0
14:      0      0
15:      0 0 0
16:
1 2 3 4 5 6 7 8 9

```

## 30 (ctrl/30)

```

1:
2: 0 0 0 0
3: 0      0
4: 0      0
5: 0 0 0 0
6: 0 0
7: 0      0
8: 0      0
9:      0 0 0
10:      0      0
11:      0
12:      0 0 0
13:      0      0
14:      0      0
15:      0 0 0
16:
1 2 3 4 5 6 7 8 9

```

## 31 (ctrl/31)

```

1:
2: 0      0
3: 0      0
4: 0      0
5: 0      0
6: 0      0
7: 0      0
8: 0 0 0
9:      0 0 0
10:      0      0
11:      0
12:      0 0 0
13:      0      0
14:      0      0
15:      0 0 0
16:
1 2 3 4 5 6 7 8 9

```

## 32 (std/32)

```

1:
2:
3:
4:
5:
6:
7:
8:
9:
10:
11:
12:
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

## 33 (std/33)

```

1:
2:
3:
4:      0
5:      0
6:      0
7:      0
8:      0
9:      0
10:
11:      0
12:      0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

## 34 (std/34)

```

1:
2:
3:
4:      0 0
5:      0 0
6:      0 0
7:      0 0
8:
9:
10:
11:
12:
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

## 35 (std/35)

```

1:
2:
3:
4:      0 0
5:      0 0
6: 0 0 0 0 0 0 0
7:      0 0
8: 0 0 0 0 0 0 0
9:      0 0
10:      0 0
11:
12:
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

36 (std/36)

```

1:
2:
3:
4:      0
5:    0 0 0 0 0
6:  0      0      0
7:  0      0
8:    0 0 0 0 0
9:      0      0
10:  0      0      0
11:    0 0 0 0 0
12:      0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
    
```

37 (std/37)

```

1:
2:
3:
4:    0      0
5:  0  0      0
6:    0      0
7:      0
8:    0
9:  0
10:  0      0
11:  0      0  0
12:  0      0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
    
```

38 (std/38)

```

1:
2:
3:
4:
5:    0 0
6:  0      0
7:  0      0
8:    0 0
9:    0 0      0
10:  0      0  0
11:  0      0
12:    0 0 0 0 0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
    
```

39 (std/39)

```

1:
2:
3:
4:      0
5:      0
6:      0
7:    0
8:
9:
10:
11:
12:
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
    
```

40 (std/40)

```

1:
2:
3:
4:      0
5:    0
6:  0
7:  0
8:  0
9:  0
10:  0
11:    0
12:    0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
    
```

41 (std/41)

```

1:
2:
3:
4:    0
5:      0
6:      0
7:      0
8:      0
9:      0
10:    0
11:    0
12:  0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
    
```

42 (std/42)

```

1:
2:
3:
4:
5:
6:    0      0
7:  0  0  0
8:  0 0 0 0 0 0 0
9:    0  0
10:  0      0
11:
12:
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
    
```

43 (std/43)

```

1:
2:
3:
4:
5:
6:    0
7:    0
8:  0 0 0 0 0
9:    0
10:  0
11:
12:
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
    
```

44 (std/44)

```

1:
2:
3:
4:
5:
6:
7:
8:
9:
10:
11:    0 0
12:    0 0
13:    0
14:  0
15:
16:
1 2 3 4 5 6 7 8 9
    
```

## 45 (std/45)

```

1:
2:
3:
4:
5:
6:
7:
8:  0 0 0 0 0
9:
10:
11:
12:
13:
14:
15:
16:
  1 2 3 4 5 6 7 8 9

```

## 46 (std/46)

```

1:
2:
3:
4:
5:
6:
7:
8:
9:
10:
11:
12:  0 0
13:  0 0
14:
15:
16:
  1 2 3 4 5 6 7 8 9

```

## 47 (std/47)

```

1:
2:
3:
4:
5:
6:
7:
8:
9:
10:
11:  0
12:  0
13:
14:
15:
16:
  1 2 3 4 5 6 7 8 9

```

## 48 (std/48)

```

1:
2:
3:  0 0 0
4:  0      0
5:  0      0
6:  0      0
7:  0      0
8:  0      0
9:  0      0
10: 0      0
11: 0      0
12:  0 0 0
13:
14:
15:
16:
  1 2 3 4 5 6 7 8 9

```

## 49 (std/49)

```

1:
2:
3:
4:  0 0
5:  0 0
6:  0
7:  0
8:  0
9:  0
10: 0
11: 0
12: 0
13:
14:
15:
16:
  1 2 3 4 5 6 7 8 9

```

## 50 (std/50)

```

1:
2:
3:  0 0 0 0
4:  0      0
5:  0      0
6:  0      0
7:
8:
9:
10:
11:  0
12: 0 0 0 0 0 0 0
13:
14:
15:
16:
  1 2 3 4 5 6 7 8 9

```

## 51 (std/51)

```

1:
2:
3:  0 0 0 0 0 0
4:
5:
6:
7:
8:
9:
10:
11:  0
12:  0 0 0 0
13:
14:
15:
16:
  1 2 3 4 5 6 7 8 9

```

## 52 (std/52)

```

1:
2:
3:
4:
5:
6:
7:
8:
9:
10:
11:
12:
13:
14:
15:
16:
  1 2 3 4 5 6 7 8 9

```

## 53 (std/53)

```

1:
2:
3:  0 0 0 0 0 0 0
4:  0
5:  0
6:  0 0 0 0 0
7:
8:
9:
10:
11:
12:  0 0 0 0 0
13:
14:
15:
16:
  1 2 3 4 5 6 7 8 9

```

## 54 (std/54)

1:  
2:  
3:    0 0 0  
4:    0  
5:    0  
6:    0  
7:    0   0 0 0  
8:    0 0       0  
9:    0         0  
10:   0         0  
11:     0       0  
12:       0 0 0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 55 (std/55)

1:  
2:  
3:    0 0 0 0 0 0 0  
4:       0  
5:       0  
6:       0  
7:       0  
8:       0  
9:       0  
10:       0  
11:       0  
12:       0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 56 (std/56)

1:  
2:  
3:    0 0 0  
4:    0       0  
5:    0       0  
6:    0       0  
7:       0 0 0  
8:    0       0  
9:    0       0  
10:   0       0  
11:     0       0  
12:       0 0 0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 57 (std/57)

1:  
2:  
3:    0 0 0  
4:    0       0  
5:    0       0  
6:    0       0  
7:    0       0 0  
8:       0 0 0 0  
9:       0  
10:       0  
11:       0  
12:       0 0 0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 58 (std/58)

1:  
2:  
3:  
4:  
5:  
6:       0 0  
7:       0 0  
8:  
9:  
10:  
11:       0 0  
12:       0 0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 59 (std/59)

1:  
2:  
3:  
4:  
5:  
6:       0 0  
7:       0 0  
8:  
9:  
10:  
11:       0 0  
12:       0 0  
13:       0  
14:       0  
15:  
16:

1 2 3 4 5 6 7 8 9

## 60 (std/60)

1:  
2:  
3:  
4:  
5:  
6:       0 0  
7:       0 0  
8:    0 0  
9:    0  
10:   0 0  
11:       0 0  
12:       0 0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 61 (std/61)

1:  
2:  
3:  
4:  
5:  
6:  
7:  
8:    0 0 0 0 0  
9:  
10:   0 0 0 0 0  
11:  
12:  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 62 (std/62)

1:  
2:  
3:  
4:  
5:  
6:    0 0  
7:       0 0  
8:       0 0  
9:       0  
10:       0 0  
11:       0 0  
12:    0 0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 63 (std/63)

1:  
2:  
3:  
4:    0 0 0  
5:    0       0  
6:        0  
7:        0  
8:       0  
9:       0  
10:  
11:  
12:       0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 64 (std/64)

1:  
2:  
3:  
4:       0 0 0  
5:       0       0  
6:       0       0       0  
7:       0       0       0       0  
8:       0       0       0       0  
9:       0       0       0       0  
10:       0       0       0       0  
11:       0       0       0       0  
12:       0       0       0       0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 65 (std/65)

1:  
2:  
3:  
4:       0 0 0  
5:       0       0  
6:       0       0  
7:       0       0  
8:       0 0 0 0 0 0 0  
9:       0       0  
10:       0       0  
11:       0       0  
12:       0       0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 66 (std/66)

1:  
2:  
3:  
4:    0 0 0 0 0 0 0  
5:    0       0  
6:    0       0  
7:    0       0  
8:    0 0 0 0 0 0  
9:    0       0  
10:   0       0  
11:   0       0  
12:   0 0 0 0 0 0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 67 (std/67)

1:  
2:  
3:  
4:       0 0 0 0  
5:       0       0  
6:       0       0  
7:       0       0  
8:       0       0  
9:       0       0  
10:       0       0  
11:       0       0  
12:       0 0 0 0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 68 (std/68)

1:  
2:  
3:  
4:    0 0 0 0 0  
5:    0       0  
6:    0       0  
7:    0       0  
8:    0       0  
9:    0       0  
10:   0       0  
11:   0       0  
12:   0 0 0 0 0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 69 (std/69)

1:  
2:  
3:  
4:    0 0 0 0 0 0 0  
5:    0  
6:    0  
7:    0  
8:    0 0 0 0 0  
9:    0  
10:   0  
11:   0  
12:   0 0 0 0 0 0 0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 70 (std/70)

1:  
2:  
3:  
4:    0 0 0 0 0 0 0  
5:    0  
6:    0  
7:    0  
8:    0 0 0 0 0  
9:    0  
10:   0  
11:   0  
12:   0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 71 (std/71)

1:  
2:  
3:  
4:       0 0 0 0  
5:       0       0  
6:       0       0  
7:       0       0  
8:       0       0 0 0 0  
9:       0       0  
10:       0       0  
11:       0       0 0  
12:       0 0 0 0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 72 (std/72)

```
1:
2:
3:
4:  0          0
5:  0          0
6:  0          0
7:  0          0
8:  0 0 0 0 0 0 0
9:  0          0
10: 0          0
11: 0          0
12: 0          0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
```

## 73 (std/73)

```
1:
2:
3:
4:  0 0 0 0 0
5:      0
6:      0
7:      0
8:      0
9:      0
10:     0
11:     0
12:  0 0 0 0 0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
```

## 74 (std/74)

```
1:
2:
3:
4:  0 0 0 0 0
5:      0
6:      0
7:      0
8:      0
9:      0
10:     0
11:  0      0
12:      0 0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
```

## 75 (std/75)

```
1:
2:
3:
4:  0          0
5:  0          0
6:  0          0
7:  0          0
8:  0          0
9:  0 0        0
10: 0          0
11: 0          0
12: 0          0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
```

## 76 (std/76)

```
1:
2:
3:
4:  0
5:  0
6:  0
7:  0
8:  0
9:  0
10: 0
11: 0
12: 0 0 0 0 0 0 0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
```

## 77 (std/77)

```
1:
2:
3:
4:  0          0
5:  0          0
6:  0 0        0 0
7:  0      0  0 0
8:  0      0  0
9:  0      0  0
10: 0          0
11: 0          0
12: 0          0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
```

## 78 (std/78)

```
1:
2:
3:
4:  0          0
5:  0          0
6:  0 0        0
7:  0      0  0
8:  0      0  0
9:  0      0  0
10: 0          0 0
11: 0          0
12: 0          0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
```

## 79 (std/79)

```
1:
2:
3:
4:  0 0 0
5:  0      0
6:  0      0
7:  0      0
8:  0      0
9:  0      0
10: 0      0
11:  0      0
12:  0 0 0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
```

## 80 (std/80)

```
1:
2:
3:
4:  0 0 0 0 0 0
5:  0          0
6:  0          0
7:  0          0
8:  0 0 0 0 0 0
9:  0
10: 0
11: 0
12: 0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
```

## 81 (std/81)

```

1:
2:
3:
4:   0 0 0
5:  0   0
6: 0   0 0
7: 0   0
8: 0   0
9: 0   0
10: 0   0 0
11:  0   0
12:   0 0 0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

## 82 (std/82)

```

1:
2:
3:
4:  0 0 0 0 0 0
5:  0   0
6:  0   0
7:  0   0
8:  0 0 0 0 0 0
9:  0   0
10:  0   0
11:  0   0
12:  0   0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

## 83 (std/83)

```

1:
2:
3:
4:  0 0 0 0 0
5:  0   0
6:  0   0
7:  0   0
8:  0 0 0 0 0
9:   0
10:  0
11:  0
12:  0 0 0 0 0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

## 84 (std/84)

```

1:
2:
3:
4:  0 0 0 0 0 0 0
5:   0
6:   0
7:   0
8:   0
9:   0
10:  0
11:  0
12:  0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

## 85 (std/85)

```

1:
2:
3:
4:  0
5:  0
6:  0
7:  0
8:  0
9:  0
10:  0
11:  0
12:  0 0 0 0 0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

## 86 (std/86)

```

1:
2:
3:
4:  0
5:  0
6:  0
7:  0
8:  0
9:  0
10:  0
11:  0
12:  0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

## 87 (std/87)

```

1:
2:
3:
4:  0
5:  0
6:  0
7:  0
8:  0
9:  0
10:  0
11:  0
12:  0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

## 88 (std/88)

```

1:
2:
3:
4:  0
5:  0
6:  0
7:  0
8:  0
9:  0
10:  0
11:  0
12:  0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

## 89 (std/89)

```

1:
2:
3:
4:  0
5:  0
6:  0
7:  0
8:  0
9:  0
10:  0
11:  0
12:  0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

## 90 (std/90)

1:  
2:  
3:  
4: 0 0 0 0 0 0 0  
5: 0  
6: 0  
7: 0  
8: 0  
9: 0  
10: 0  
11: 0  
12: 0 0 0 0 0 0 0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 91 (std/91)

1:  
2:  
3:  
4: 0 0 0 0 0  
5: 0 0  
6: 0 0  
7: 0 0  
8: 0 0 0 0 0 0  
9: 0 0  
10: 0 0  
11: 0 0  
12: 0 0 0 0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 92 (std/92)

1:  
2:  
3:  
4: 0 0 0 0  
5: 0 0 0  
6: 0 0 0 0  
7: 0 0 0 0  
8: 0 0 0 0  
9: 0 0 0 0  
10: 0 0 0 0  
11: 0 0 0  
12: 0 0 0 0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 93 (std/93)

1:  
2:  
3:  
4: 0 0 0  
5: 0 0 0  
6: 0 0 0  
7: 0 0  
8: 0 0 0  
9: 0 0 0 0 0 0  
10: 0 0  
11: 0 0  
12: 0 0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 94 (std/94)

1:  
2:  
3:  
4: 0  
5: 0 0 0  
6: 0 0 0  
7: 0  
8: 0  
9: 0  
10: 0  
11: 0  
12: 0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 95 (std/95)

1:  
2:  
3:  
4:  
5:  
6:  
7:  
8:  
9:  
10:  
11:  
12:  
13: 0 0 0 0 0 0 0  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 96 (std/96)

1:  
2:  
3:  
4: 0  
5: 0  
6: 0  
7:  
8:  
9:  
10:  
11:  
12:  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 97 (std/97)

1:  
2:  
3:  
4:  
5:  
6:  
7: 0 0 0 0  
8: 0 0  
9: 0 0 0 0  
10: 0 0 0 0  
11: 0 0 0 0  
12: 0 0 0 0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 98 (std/98)

1:  
2:  
3:  
4: 0  
5: 0  
6: 0  
7: 0 0 0 0  
8: 0 0 0  
9: 0 0  
10: 0 0 0  
11: 0 0 0  
12: 0 0 0 0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 99 (std/99)

1:  
2:  
3:  
4:  
5:  
6:  
7:    Ø Ø Ø Ø  
8:    Ø           Ø  
9:    Ø           Ø  
10:   Ø           Ø  
11:   Ø           Ø  
12:    Ø Ø Ø Ø  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 100 (std/100)

1:  
2:  
3:  
4:            Ø  
5:            Ø  
6:            Ø  
7:    Ø Ø Ø   Ø  
8:    Ø       Ø Ø  
9:    Ø       Ø  
10:   Ø       Ø  
11:   Ø       Ø Ø  
12:    Ø Ø Ø   Ø  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 101 (std/101)

1:  
2:  
3:  
4:  
5:  
6:  
7:    Ø Ø Ø Ø  
8:    Ø           Ø  
9:    Ø Ø Ø Ø Ø Ø  
10:   Ø           Ø  
11:   Ø           Ø  
12:    Ø Ø Ø Ø  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 102 (std/102)

1:  
2:  
3:  
4:            Ø Ø  
5:            Ø    Ø  
6:            Ø  
7:            Ø  
8:    Ø Ø Ø Ø Ø  
9:            Ø  
10:           Ø  
11:           Ø  
12:           Ø  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 103 (std/103)

1:  
2:  
3:  
4:  
5:  
6:  
7:    Ø Ø Ø   Ø  
8:    Ø       Ø Ø  
9:    Ø       Ø  
10:   Ø       Ø Ø  
11:    Ø Ø Ø   Ø  
12:            Ø  
13:    Ø       Ø  
14:    Ø Ø Ø Ø  
15:  
16:

1 2 3 4 5 6 7 8 9

## 104 (std/104)

1:  
2:  
3:  
4:    Ø  
5:    Ø  
6:    Ø  
7:    Ø    Ø Ø Ø  
8:    Ø Ø       Ø  
9:    Ø        Ø  
10:   Ø        Ø  
11:   Ø        Ø  
12:   Ø        Ø  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 105 (std/105)

1:  
2:  
3:  
4:  
5:            Ø  
6:  
7:            Ø  
8:            Ø  
9:            Ø  
10:           Ø  
11:           Ø  
12:            Ø  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 106 (std/106)

1:  
2:  
3:  
4:  
5:            Ø  
6:  
7:            Ø  
8:            Ø  
9:            Ø  
10:           Ø  
11:           Ø  
12:           Ø  
13:           Ø  
14:           Ø Ø  
15:  
16:

1 2 3 4 5 6 7 8 9

## 107 (std/107)

1:  
2:  
3:  
4:    Ø  
5:    Ø  
6:    Ø           Ø  
7:    Ø           Ø  
8:    Ø           Ø  
9:    Ø           Ø  
10:   Ø Ø        Ø  
11:   Ø           Ø  
12:   Ø           Ø  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 108 (std/108)

1:  
2:  
3:  
4:    Ø  
5:    Ø  
6:    Ø  
7:    Ø  
8:    Ø  
9:    Ø  
10:   Ø  
11:   Ø  
12:       Ø Ø Ø  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 109 (std/109)

1:  
2:  
3:  
4:  
5:  
6:  
7:    Ø    Ø    Ø  
8:    Ø Ø    Ø Ø    Ø  
9:    Ø    Ø    Ø  
10:   Ø    Ø    Ø  
11:   Ø    Ø    Ø  
12:   Ø    Ø    Ø  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 110 (std/110)

1:  
2:  
3:  
4:  
5:  
6:  
7:    Ø    Ø Ø Ø  
8:    Ø Ø    Ø  
9:    Ø    Ø  
10:   Ø    Ø  
11:   Ø    Ø  
12:   Ø    Ø  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 111 (std/111)

1:  
2:  
3:  
4:  
5:  
6:  
7:    Ø Ø Ø Ø  
8:    Ø    Ø  
9:    Ø    Ø  
10:   Ø    Ø  
11:   Ø    Ø  
12:       Ø Ø Ø Ø  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 112 (std/112)

1:  
2:  
3:  
4:  
5:  
6:  
7:    Ø    Ø Ø Ø  
8:    Ø Ø    Ø  
9:    Ø    Ø  
10:   Ø Ø    Ø  
11:   Ø    Ø Ø Ø  
12:   Ø  
13:   Ø  
14:   Ø  
15:  
16:

1 2 3 4 5 6 7 8 9

## 113 (std/113)

1:  
2:  
3:  
4:  
5:  
6:  
7:    Ø Ø Ø    Ø  
8:    Ø    Ø Ø  
9:    Ø    Ø  
10:   Ø    Ø Ø  
11:       Ø Ø Ø  
12:       Ø  
13:       Ø  
14:       Ø  
15:  
16:

1 2 3 4 5 6 7 8 9

## 114 (std/114)

1:  
2:  
3:  
4:  
5:  
6:  
7:    Ø    Ø Ø Ø  
8:    Ø Ø  
9:    Ø  
10:   Ø  
11:   Ø  
12:   Ø  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 115 (std/115)

1:  
2:  
3:  
4:  
5:  
6:  
7:    Ø Ø Ø Ø  
8:    Ø    Ø  
9:    Ø Ø  
10:       Ø Ø  
11:   Ø    Ø  
12:       Ø Ø Ø Ø  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 116 (std/116)

1:  
2:  
3:  
4:  
5:       Ø  
6:       Ø  
7:    Ø Ø Ø Ø Ø  
8:       Ø  
9:       Ø  
10:       Ø  
11:       Ø  
12:       Ø Ø  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 117 (std/117)

```
1:
2:
3:
4:
5:
6:
7:  0      0
8:  0      0
9:  0      0
10: 0      0
11: 0      0 0
12:  0 0 0 0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
```

## 118 (std/118)

```
1:
2:
3:
4:
5:
6:
7:  0      0
8:  0      0
9:    0      0
10:   0      0
11:    0 0
12:      0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
```

## 119 (std/119)

```
1:
2:
3:
4:
5:
6:
7:  0      0
8:  0      0 0
9:  0      0 0
10: 0      0 0
11: 0 0 0 0
12:   0      0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
```

## 120 (std/120)

```
1:
2:
3:
4:
5:
6:
7:  0      0
8:    0      0
9:      0 0
10:     0 0
11:    0      0
12:  0      0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
```

## 121 (std/121)

```
1:
2:
3:
4:
5:
6:
7:  0      0
8:  0      0
9:  0      0
10: 0      0 0
11:   0 0 0 0
12:      0
13:  0      0
14:   0 0 0 0
15:
16:
1 2 3 4 5 6 7 8 9
```

## 122 (std/122)

```
1:
2:
3:
4:
5:
6:
7:  0 0 0 0 0 0
8:      0
9:      0
10:     0
11:    0
12:  0 0 0 0 0 0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
```

## 123 (std/123)

```
1:
2:
3:
4:
5:
6:
7:  0 0 0 0 0 0
8:      0      0
9:    0 0 0 0 0 0
10:  0      0
11:  0      0
12:    0 0 0 0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
```

## 124 (std/124)

```
1:
2:
3:
4:
5:
6:
7:    0 0 0 0
8:  0      0 0
9:  0      0
10: 0 0 0 0
11: 0 0 0 0
12:   0 0 0 0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
```

## 125 (std/125)

```
1:
2:
3:
4:      0 0
5:    0      0
6:      0 0
7:    0 0 0 0
8:      0
9:    0 0 0 0
10:  0      0 0
11:  0      0 0
12:    0 0 0 0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
```

## 126 (std/126)

```

1:
2:
3:
4:
5:
6:
7:
8:  Ø  Ø  Ø  Ø  Ø
9:  Ø
10:
11:
12:
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

## 127 (std/127)

```

1:
2:
3:
4:  Ø  Ø  Ø
5:  Ø  Ø  Ø  Ø
6:  Ø  Ø  Ø  Ø
7:  Ø  Ø  Ø  Ø
8:  Ø  Ø  Ø  Ø
9:  Ø  Ø  Ø  Ø
10:  Ø  Ø  Ø  Ø
11:  Ø  Ø  Ø  Ø
12:  Ø  Ø  Ø
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

## 128 (sec/32)

```

1:
2:
3:  Ø  Ø
4:  Ø  Ø
5:
6:  Ø  Ø
7:  Ø  Ø
8:  Ø  Ø
9:  Ø  Ø
10:  Ø  Ø
11:  Ø  Ø
12:  Ø  Ø  Ø  Ø  Ø
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

## 129 (sec/33)

```

1:
2:
3:
4:  Ø
5:  Ø
6:  Ø
7:  Ø  Ø  Ø  Ø
8:  Ø
9:  Ø  Ø  Ø  Ø
10:  Ø  Ø  Ø  Ø
11:  Ø  Ø  Ø  Ø
12:  Ø  Ø  Ø  Ø
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

## 130 (sec/34)

```

1:
2:
3:  Ø  Ø  Ø
4:  Ø  Ø  Ø  Ø  Ø
5:
6:  Ø  Ø
7:  Ø  Ø
8:  Ø  Ø
9:  Ø  Ø
10:  Ø  Ø
11:  Ø  Ø
12:  Ø  Ø
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

## 131 (sec/35)

```

1:
2:
3:
4:  Ø  Ø  Ø
5:  Ø
6:  Ø
7:  Ø
8:  Ø  Ø  Ø  Ø  Ø
9:  Ø
10:  Ø
11:  Ø  Ø  Ø  Ø
12:  Ø  Ø  Ø  Ø
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

## 132 (sec/36)

```

1:
2:
3:
4:  Ø  Ø
5:  Ø  Ø  Ø  Ø
6:  Ø  Ø  Ø  Ø
7:  Ø  Ø  Ø  Ø
8:  Ø  Ø  Ø  Ø
9:  Ø  Ø  Ø  Ø
10:  Ø  Ø  Ø  Ø
11:  Ø  Ø  Ø  Ø
12:  Ø  Ø  Ø  Ø
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

## 133 (sec/37)

```

1:
2:
3:
4:
5:  Ø  Ø
6:
7:  Ø  Ø
8:  Ø  Ø
9:  Ø  Ø
10:  Ø  Ø
11:  Ø  Ø
12:  Ø  Ø  Ø  Ø
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

## 134 (sec/38)

```

1:
2:
3:  Ø  Ø
4:  Ø  Ø
5:
6:  Ø  Ø  Ø
7:  Ø  Ø
8:  Ø  Ø
9:  Ø  Ø  Ø  Ø  Ø  Ø
10:  Ø  Ø
11:  Ø  Ø
12:  Ø  Ø
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

## 135 (sec/39)

1:  
2:  
3:        0        0  
4:        0        0  
5:  
6:    0 0 0 0 0 0 0  
7:    0  
8:    0  
9:    0 0 0 0 0  
10:    0  
11:    0  
12:    0 0 0 0 0 0 0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 136 (sec/40)

1:  
2:  
3:  
4:        0 0 0 0  
5:        0        0  
6:    0  
7:    0  
8:    0  
9:    0  
10:    0  
11:        0        0  
12:        0 0 0 0  
13:        0  
14:        0  
15:  
16:

1 2 3 4 5 6 7 8 9

## 137 (sec/41)

1: 0 0 0 0 0 0 0 0 0  
2:  
3:  
4:  
5:  
6:  
7:  
8:  
9:  
10:  
11:  
12:  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 138 (sec/42)

1:  
2:  
3:        0  
4:        0  
5:        0  
6:    0 0 0 0 0 0 0  
7:    0  
8:    0  
9:    0 0 0 0 0  
10:    0  
11:    0  
12:    0 0 0 0 0 0 0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 139 (sec/43)

1:  
2:  
3:  
4:        0 0 0  
5:        0  
6:        0  
7:        0  
8:        0  
9:        0  
10:       0  
11:       0  
12:       0 0 0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 140 (sec/44)

1:  
2:  
3:  
4:        0  
5:        0  
6:        0  
7:        0  
8:        0  
9:        0  
10:       0  
11:       0  
12:       0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 141 (sec/45)

1:  
2:  
3:  
4:        0 0 0  
5:        0  
6:        0  
7:        0  
8:        0  
9:        0  
10:       0  
11:       0  
12:       0 0 0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 142 (sec/46)

1:  
2:  
3:        0        0  
4:        0        0  
5:  
6:        0 0 0  
7:        0        0  
8:    0        0  
9:    0        0  
10:    0        0  
11:       0        0  
12:       0 0 0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 143 (sec/47)

1:  
2:  
3:  
4:  
5:        0        0  
6:  
7:        0 0 0 0  
8:    0        0  
9:    0        0  
10:    0        0  
11:    0        0  
12:       0 0 0 0  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

144 (sec/48)

```

1:
2:
3:  0      0
4:  0      0
5:
6:
7:
8:
9:
10:
11:
12:
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
    
```

145 (sec/49)

```

1:
2:
3:
4:    0 0 0
5:    0      0
6:    0      0
7:    0      0
8:    0      0
9:    0      0
10:   0      0
11:   0      0
12:   0 0 0 0
13:   0
14:
15:
16:
1 2 3 4 5 6 7 8 9
    
```

146 (sec/50)

```

1:
2:
3:
4:  0 0 0      0
5: 0      0 0 0
6:
7:  0 0 0 0
8:  0 0      0
9:  0      0
10:  0      0
11:  0      0
12:  0      0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
    
```

147 (sec/51)

```

1:
2:
3:    0 0 0
4:    0      0
5:    0
6:    0
7:    0 0
8:    0      0
9:    0      0
10:   0 0
11:   0
12:   0
13:  0      0
14:  0 0 0
15:
16:
1 2 3 4 5 6 7 8 9
    
```

148 (sec/52)

```

1:
2:
3:
4:    0
5:    0
6:    0
7:  0      0
8:  0      0
9:  0      0
10:  0      0
11:  0      0 0
12:  0 0 0 0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
    
```

149 (sec/53)

```

1:
2:
3:
4:    0
5:    0
6:    0
7:  0 0 0 0
8:  0      0
9:  0 0 0 0 0 0
10:  0
11:  0      0
12:  0 0 0 0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
    
```

150 (sec/54)

```

1:
2:
3:
4:
5:  0      0
6:
7:  0 0 0 0
8:    0
9:  0 0 0 0
10:  0      0 0
11:  0      0 0
12:  0 0 0 0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
    
```

151 (sec/55)

```

1:
2:
3:
4:
5:  0      0
6:
7:  0 0 0 0
8:  0      0
9:  0 0 0 0 0 0
10:  0
11:  0      0
12:  0 0 0 0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9
    
```

152 (sec/56)

```

1:
2:
3:
4:
5:
6:
7:  0 0 0 0
8:  0      0
9:  0
10:  0
11:  0      0
12:  0 0 0 0
13:    0
14:    0
15:
16:
1 2 3 4 5 6 7 8 9
    
```

## 153 (sec/57)

```

1:
2:
3:
4:
5:
6:
7:
8:
9:
10:
11:
12:
13:
14:
15:
16: 0 0 0 0 0 0 0 0 0
    1 2 3 4 5 6 7 8 9

```

## 154 (sec/58)

```

1:
2:
3:
4:      0
5:      0
6:    0
7:  0 0 0 0
8:  0      0
9:  0 0 0 0 0 0
10: 0
11: 0      0
12:  0 0 0 0
13:
14:
15:
16: 1 2 3 4 5 6 7 8 9

```

## 155 (sec/59)

```

1:
2:
3:
4:    0 0
5:    0
6:    0
7:    0
8:  0
9:    0
10:   0
11:   0
12:    0 0
13:
14:
15:
16: 1 2 3 4 5 6 7 8 9

```

## 156 (sec/60)

```

1: 0
2: 0
3: 0
4: 0
5: 0
6: 0
7: 0
8: 0
9: 0
10: 0
11: 0
12: 0
13: 0
14: 0
15: 0
16: 0
    1 2 3 4 5 6 7 8 9

```

## 157 (sec/61)

```

1:
2:
3:
4:    0 0
5:      0
6:      0
7:      0
8:        0
9:      0
10:     0
11:     0
12:  0 0
13:
14:
15:
16: 1 2 3 4 5 6 7 8 9

```

## 158 (sec/62)

```

1:
2:
3:
4:      0
5:    0 0
6:  0 0 0
7:  0      0
8:
9:
10:
11:
12:
13:
14:
15:
16: 1 2 3 4 5 6 7 8 9

```

## 159 (sec/63)

```

1: 0
2: 0
3: 0
4: 0
5: 0
6: 0
7: 0
8: 0
9: 0
10: 0
11: 0
12: 0
13: 0
14: 0
15: 0
16: 0
    1 2 3 4 5 6 7 8 9

```

## 160 (sec/64)

```

1:
2:
3:
4:
5:
6:
7:
8:
9:
10:
11:
12:
13:
14:
15:
16: 1 2 3 4 5 6 7 8 9

```

## 161 (sec/65)

```

1: 0 0 0 0
2: 0 0 0 0
3: 0 0 0 0
4: 0 0 0 0
5: 0 0 0 0
6:
7:
8:
9:
10:
11:
12:
13:
14:
15:
16: 1 2 3 4 5 6 7 8 9

```

## 162 (sec/66)

1: 0 0 0 0  
2: 0 0 0 0  
3: 0 0 0 0  
4: 0 0 0 0  
5: 0 0 0 0  
6:  
7:  
8:  
9:  
10:  
11:  
12:  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 163 (sec/67)

1: 0 0 0 0 0 0 0 0  
2: 0 0 0 0 0 0 0 0  
3: 0 0 0 0 0 0 0 0  
4: 0 0 0 0 0 0 0 0  
5: 0 0 0 0 0 0 0 0  
6:  
7:  
8:  
9:  
10:  
11:  
12:  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 164 (sec/68)

1:  
2:  
3:  
4:  
5:  
6: 0 0 0 0  
7: 0 0 0 0  
8: 0 0 0 0  
9: 0 0 0 0  
10: 0 0 0 0  
11: 0 0 0 0  
12:  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 165 (sec/69)

1: 0 0 0 0  
2: 0 0 0 0  
3: 0 0 0 0  
4: 0 0 0 0  
5: 0 0 0 0  
6: 0 0 0 0  
7: 0 0 0 0  
8: 0 0 0 0  
9: 0 0 0 0  
10: 0 0 0 0  
11: 0 0 0 0  
12:  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 166 (sec/70)

1: 0 0 0 0 0  
2: 0 0 0 0 0  
3: 0 0 0 0 0  
4: 0 0 0 0 0  
5: 0 0 0 0 0  
6: 0 0 0 0  
7: 0 0 0 0  
8: 0 0 0 0  
9: 0 0 0 0  
10: 0 0 0 0  
11: 0 0 0 0  
12:  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 167 (sec/71)

1: 0 0 0 0 0 0 0 0  
2: 0 0 0 0 0 0 0 0  
3: 0 0 0 0 0 0 0 0  
4: 0 0 0 0 0 0 0 0  
5: 0 0 0 0 0 0 0 0  
6: 0 0 0 0  
7: 0 0 0 0  
8: 0 0 0 0  
9: 0 0 0 0  
10: 0 0 0 0  
11: 0 0 0 0  
12:  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 168 (sec/72)

1:  
2:  
3:  
4:  
5:  
6: 0 0 0 0 0  
7: 0 0 0 0 0  
8: 0 0 0 0 0  
9: 0 0 0 0 0  
10: 0 0 0 0 0  
11: 0 0 0 0 0  
12:  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 169 (sec/73)

1: 0 0 0 0  
2: 0 0 0 0  
3: 0 0 0 0  
4: 0 0 0 0  
5: 0 0 0 0  
6: 0 0 0 0 0  
7: 0 0 0 0 0  
8: 0 0 0 0 0  
9: 0 0 0 0 0  
10: 0 0 0 0 0  
11: 0 0 0 0 0  
12:  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 170 (sec/74)

1: 0 0 0 0 0  
2: 0 0 0 0 0  
3: 0 0 0 0 0  
4: 0 0 0 0 0  
5: 0 0 0 0 0  
6: 0 0 0 0 0  
7: 0 0 0 0 0  
8: 0 0 0 0 0  
9: 0 0 0 0 0  
10: 0 0 0 0 0  
11: 0 0 0 0 0  
12:  
13:  
14:  
15:  
16:

1 2 3 4 5 6 7 8 9

## 171 (sec/75)

1: 0 0 0 0 0 0 0 0 0  
2: 0 0 0 0 0 0 0 0 0  
3: 0 0 0 0 0 0 0 0 0  
4: 0 0 0 0 0 0 0 0 0  
5: 0 0 0 0 0 0 0 0 0  
6: 0 0 0 0 0 0 0 0 0  
7: 0 0 0 0 0 0 0 0 0  
8: 0 0 0 0 0 0 0 0 0  
9: 0 0 0 0 0 0 0 0 0  
10: 0 0 0 0 0 0 0 0 0  
11: 0 0 0 0 0 0 0 0 0  
12:  
13:  
14:  
15:  
16:  
1 2 3 4 5 6 7 8 9

## 172 (sec/76)

1:  
2:  
3:  
4:  
5:  
6: 0 0 0 0 0 0 0 0 0  
7: 0 0 0 0 0 0 0 0 0  
8: 0 0 0 0 0 0 0 0 0  
9: 0 0 0 0 0 0 0 0 0  
10: 0 0 0 0 0 0 0 0 0  
11: 0 0 0 0 0 0 0 0 0  
12:  
13:  
14:  
15:  
16:  
1 2 3 4 5 6 7 8 9

## 173 (sec/77)

1: 0 0 0 0  
2: 0 0 0 0  
3: 0 0 0 0  
4: 0 0 0 0  
5: 0 0 0 0  
6: 0 0 0 0 0 0 0 0 0  
7: 0 0 0 0 0 0 0 0 0  
8: 0 0 0 0 0 0 0 0 0  
9: 0 0 0 0 0 0 0 0 0  
10: 0 0 0 0 0 0 0 0 0  
11: 0 0 0 0 0 0 0 0 0  
12:  
13:  
14:  
15:  
16:  
1 2 3 4 5 6 7 8 9

## 174 (sec/78)

1: 0 0 0 0 0  
2: 0 0 0 0 0  
3: 0 0 0 0 0  
4: 0 0 0 0 0  
5: 0 0 0 0 0  
6: 0 0 0 0 0 0 0 0 0  
7: 0 0 0 0 0 0 0 0 0  
8: 0 0 0 0 0 0 0 0 0  
9: 0 0 0 0 0 0 0 0 0  
10: 0 0 0 0 0 0 0 0 0  
11: 0 0 0 0 0 0 0 0 0  
12:  
13:  
14:  
15:  
16:  
1 2 3 4 5 6 7 8 9

## 175 (sec/79)

1: 0 0 0 0 0 0 0 0 0  
2: 0 0 0 0 0 0 0 0 0  
3: 0 0 0 0 0 0 0 0 0  
4: 0 0 0 0 0 0 0 0 0  
5: 0 0 0 0 0 0 0 0 0  
6: 0 0 0 0 0 0 0 0 0  
7: 0 0 0 0 0 0 0 0 0  
8: 0 0 0 0 0 0 0 0 0  
9: 0 0 0 0 0 0 0 0 0  
10: 0 0 0 0 0 0 0 0 0  
11: 0 0 0 0 0 0 0 0 0  
12:  
13:  
14:  
15:  
16:  
1 2 3 4 5 6 7 8 9

## 176 (sec/80)

1:  
2:  
3:  
4:  
5:  
6:  
7:  
8:  
9:  
10:  
11:  
12: 0 0 0 0  
13: 0 0 0 0  
14: 0 0 0 0  
15: 0 0 0 0  
16: 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 177 (sec/81)

1: 0 0 0 0  
2: 0 0 0 0  
3: 0 0 0 0  
4: 0 0 0 0  
5: 0 0 0 0  
6:  
7:  
8:  
9:  
10:  
11:  
12: 0 0 0 0  
13: 0 0 0 0  
14: 0 0 0 0  
15: 0 0 0 0  
16: 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 178 (sec/82)

1: 0 0 0 0 0  
2: 0 0 0 0 0  
3: 0 0 0 0 0  
4: 0 0 0 0 0  
5: 0 0 0 0 0  
6:  
7:  
8:  
9:  
10:  
11:  
12: 0 0 0 0  
13: 0 0 0 0  
14: 0 0 0 0  
15: 0 0 0 0  
16: 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 179 (sec/83)

1: 0 0 0 0 0 0 0 0 0  
2: 0 0 0 0 0 0 0 0 0  
3: 0 0 0 0 0 0 0 0 0  
4: 0 0 0 0 0 0 0 0 0  
5: 0 0 0 0 0 0 0 0 0  
6:  
7:  
8:  
9:  
10:  
11:  
12: 0 0 0 0  
13: 0 0 0 0  
14: 0 0 0 0  
15: 0 0 0 0  
16: 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 180 (sec/84)

1: 0 0 0 0  
2: 0 0 0 0  
3: 0 0 0 0  
4: 0 0 0 0  
5: 0 0 0 0  
6: 0 0 0 0  
7: 0 0 0 0  
8: 0 0 0 0  
9: 0 0 0 0  
10: 0 0 0 0  
11: 0 0 0 0  
12: 0 0 0 0  
13: 0 0 0 0  
14: 0 0 0 0  
15: 0 0 0 0  
16: 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 181 (sec/85)

1: 0 0 0 0  
2: 0 0 0 0  
3: 0 0 0 0  
4: 0 0 0 0  
5: 0 0 0 0  
6: 0 0 0 0  
7: 0 0 0 0  
8: 0 0 0 0  
9: 0 0 0 0  
10: 0 0 0 0  
11: 0 0 0 0  
12: 0 0 0 0  
13: 0 0 0 0  
14: 0 0 0 0  
15: 0 0 0 0  
16: 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 182 (sec/86)

1: 0 0 0 0 0  
2: 0 0 0 0 0  
3: 0 0 0 0 0  
4: 0 0 0 0 0  
5: 0 0 0 0 0  
6: 0 0 0 0  
7: 0 0 0 0  
8: 0 0 0 0  
9: 0 0 0 0  
10: 0 0 0 0  
11: 0 0 0 0  
12: 0 0 0 0  
13: 0 0 0 0  
14: 0 0 0 0  
15: 0 0 0 0  
16: 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 183 (sec/87)

1: 0 0 0 0 0 0 0 0 0  
2: 0 0 0 0 0 0 0 0 0  
3: 0 0 0 0 0 0 0 0 0  
4: 0 0 0 0 0 0 0 0 0  
5: 0 0 0 0 0 0 0 0 0  
6: 0 0 0 0  
7: 0 0 0 0  
8: 0 0 0 0  
9: 0 0 0 0  
10: 0 0 0 0  
11: 0 0 0 0  
12: 0 0 0 0  
13: 0 0 0 0  
14: 0 0 0 0  
15: 0 0 0 0  
16: 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 184 (sec/88)

1: 0 0 0 0  
2: 0 0 0 0  
3: 0 0 0 0  
4: 0 0 0 0  
5: 0 0 0 0  
6: 0 0 0 0 0 0  
7: 0 0 0 0 0 0  
8: 0 0 0 0 0 0  
9: 0 0 0 0 0 0  
10: 0 0 0 0 0 0  
11: 0 0 0 0 0 0  
12: 0 0 0 0  
13: 0 0 0 0  
14: 0 0 0 0  
15: 0 0 0 0  
16: 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 185 (sec/89)

1: 0 0 0 0  
2: 0 0 0 0  
3: 0 0 0 0  
4: 0 0 0 0  
5: 0 0 0 0  
6: 0 0 0 0 0 0  
7: 0 0 0 0 0 0  
8: 0 0 0 0 0 0  
9: 0 0 0 0 0 0  
10: 0 0 0 0 0 0  
11: 0 0 0 0 0 0  
12: 0 0 0 0  
13: 0 0 0 0  
14: 0 0 0 0  
15: 0 0 0 0  
16: 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 186 (sec/90)

1: 0 0 0 0 0  
2: 0 0 0 0 0  
3: 0 0 0 0 0  
4: 0 0 0 0 0  
5: 0 0 0 0 0  
6: 0 0 0 0 0  
7: 0 0 0 0 0  
8: 0 0 0 0 0  
9: 0 0 0 0 0  
10: 0 0 0 0 0  
11: 0 0 0 0 0  
12: 0 0 0 0  
13: 0 0 0 0  
14: 0 0 0 0  
15: 0 0 0 0  
16: 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 187 (sec/91)

1: 0 0 0 0 0 0 0 0 0  
2: 0 0 0 0 0 0 0 0 0  
3: 0 0 0 0 0 0 0 0 0  
4: 0 0 0 0 0 0 0 0 0  
5: 0 0 0 0 0 0 0 0 0  
6: 0 0 0 0 0 0 0 0  
7: 0 0 0 0 0 0 0 0  
8: 0 0 0 0 0 0 0 0  
9: 0 0 0 0 0 0 0 0  
10: 0 0 0 0 0 0 0 0  
11: 0 0 0 0 0 0 0 0  
12: 0 0 0 0  
13: 0 0 0 0  
14: 0 0 0 0  
15: 0 0 0 0  
16: 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 188 (sec/92)

1: 0 0 0 0  
2: 0 0 0 0  
3: 0 0 0 0  
4: 0 0 0 0  
5: 0 0 0 0  
6: 0 0 0 0 0 0 0 0  
7: 0 0 0 0 0 0 0 0  
8: 0 0 0 0 0 0 0 0  
9: 0 0 0 0 0 0 0 0  
10: 0 0 0 0 0 0 0 0  
11: 0 0 0 0 0 0 0 0  
12: 0 0 0 0  
13: 0 0 0 0  
14: 0 0 0 0  
15: 0 0 0 0  
16: 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 189 (sec/93)

1: 0 0 0 0  
2: 0 0 0 0  
3: 0 0 0 0  
4: 0 0 0 0  
5: 0 0 0 0  
6: 0 0 0 0 0 0 0 0 0 0  
7: 0 0 0 0 0 0 0 0 0 0  
8: 0 0 0 0 0 0 0 0 0 0  
9: 0 0 0 0 0 0 0 0 0 0  
10: 0 0 0 0 0 0 0 0 0 0  
11: 0 0 0 0 0 0 0 0 0 0  
12: 0 0 0 0  
13: 0 0 0 0  
14: 0 0 0 0  
15: 0 0 0 0  
16: 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 190 (sec/94)

1: 0 0 0 0 0  
2: 0 0 0 0 0  
3: 0 0 0 0 0  
4: 0 0 0 0 0  
5: 0 0 0 0 0  
6: 0 0 0 0 0 0 0 0 0 0  
7: 0 0 0 0 0 0 0 0 0 0  
8: 0 0 0 0 0 0 0 0 0 0  
9: 0 0 0 0 0 0 0 0 0 0  
10: 0 0 0 0 0 0 0 0 0 0  
11: 0 0 0 0 0 0 0 0 0 0  
12: 0 0 0 0  
13: 0 0 0 0  
14: 0 0 0 0  
15: 0 0 0 0  
16: 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 191 (sec/95)

1: 0 0 0 0 0 0 0 0 0 0  
2: 0 0 0 0 0 0 0 0 0 0  
3: 0 0 0 0 0 0 0 0 0 0  
4: 0 0 0 0 0 0 0 0 0 0  
5: 0 0 0 0 0 0 0 0 0 0  
6: 0 0 0 0 0 0 0 0 0 0  
7: 0 0 0 0 0 0 0 0 0 0  
8: 0 0 0 0 0 0 0 0 0 0  
9: 0 0 0 0 0 0 0 0 0 0  
10: 0 0 0 0 0 0 0 0 0 0  
11: 0 0 0 0 0 0 0 0 0 0  
12: 0 0 0 0  
13: 0 0 0 0  
14: 0 0 0 0  
15: 0 0 0 0  
16: 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 192 (third/32)

1:  
2:  
3:  
4:  
5:  
6:  
7:  
8:  
9:  
10:  
11:  
12: 0 0 0 0 0  
13: 0 0 0 0 0  
14: 0 0 0 0 0  
15: 0 0 0 0 0  
16: 0 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 193 (third/33)

1: 0 0 0 0  
2: 0 0 0 0  
3: 0 0 0 0  
4: 0 0 0 0  
5: 0 0 0 0  
6:  
7:  
8:  
9:  
10:  
11:  
12: 0 0 0 0 0  
13: 0 0 0 0 0  
14: 0 0 0 0 0  
15: 0 0 0 0 0  
16: 0 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 194 (third/34)

1: 0 0 0 0 0  
2: 0 0 0 0 0  
3: 0 0 0 0 0  
4: 0 0 0 0 0  
5: 0 0 0 0 0  
6:  
7:  
8:  
9:  
10:  
11:  
12: 0 0 0 0 0  
13: 0 0 0 0 0  
14: 0 0 0 0 0  
15: 0 0 0 0 0  
16: 0 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 195 (third/35)

1: 0 0 0 0 0 0 0 0 0 0  
2: 0 0 0 0 0 0 0 0 0 0  
3: 0 0 0 0 0 0 0 0 0 0  
4: 0 0 0 0 0 0 0 0 0 0  
5: 0 0 0 0 0 0 0 0 0 0  
6:  
7:  
8:  
9:  
10:  
11:  
12: 0 0 0 0 0  
13: 0 0 0 0 0  
14: 0 0 0 0 0  
15: 0 0 0 0 0  
16: 0 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 196 (third/36)

1:  
2:  
3:  
4:  
5:  
6: 0 0 0 0  
7: 0 0 0 0  
8: 0 0 0 0  
9: 0 0 0 0  
10: 0 0 0 0  
11: 0 0 0 0  
12: 0 0 0 0 0  
13: 0 0 0 0 0  
14: 0 0 0 0 0  
15: 0 0 0 0 0  
16: 0 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 197 (third/37)

1: 0 0 0 0  
2: 0 0 0 0  
3: 0 0 0 0  
4: 0 0 0 0  
5: 0 0 0 0  
6: 0 0 0 0  
7: 0 0 0 0  
8: 0 0 0 0  
9: 0 0 0 0  
10: 0 0 0 0  
11: 0 0 0 0  
12: 0 0 0 0 0  
13: 0 0 0 0 0  
14: 0 0 0 0 0  
15: 0 0 0 0 0  
16: 0 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 198 (third/38)

1: 0 0 0 0 0  
2: 0 0 0 0 0  
3: 0 0 0 0 0  
4: 0 0 0 0 0  
5: 0 0 0 0 0  
6: 0 0 0 0  
7: 0 0 0 0  
8: 0 0 0 0  
9: 0 0 0 0  
10: 0 0 0 0  
11: 0 0 0 0  
12: 0 0 0 0 0  
13: 0 0 0 0 0  
14: 0 0 0 0 0  
15: 0 0 0 0 0  
16: 0 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 199 (third/39)

1: 0 0 0 0 0 0 0 0 0  
2: 0 0 0 0 0 0 0 0 0  
3: 0 0 0 0 0 0 0 0 0  
4: 0 0 0 0 0 0 0 0 0  
5: 0 0 0 0 0 0 0 0 0  
6: 0 0 0 0  
7: 0 0 0 0  
8: 0 0 0 0  
9: 0 0 0 0  
10: 0 0 0 0  
11: 0 0 0 0  
12: 0 0 0 0 0  
13: 0 0 0 0 0  
14: 0 0 0 0 0  
15: 0 0 0 0 0  
16: 0 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 200 (third/40)

1: 0 0 0 0 0  
2: 0 0 0 0 0  
3: 0 0 0 0 0  
4: 0 0 0 0 0  
5: 0 0 0 0 0  
6: 0 0 0 0 0  
7: 0 0 0 0 0  
8: 0 0 0 0 0  
9: 0 0 0 0 0  
10: 0 0 0 0 0  
11: 0 0 0 0 0  
12: 0 0 0 0 0  
13: 0 0 0 0 0  
14: 0 0 0 0 0  
15: 0 0 0 0 0  
16: 0 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 201 (third/41)

1: 0 0 0 0  
2: 0 0 0 0  
3: 0 0 0 0  
4: 0 0 0 0  
5: 0 0 0 0  
6: 0 0 0 0 0  
7: 0 0 0 0 0  
8: 0 0 0 0 0  
9: 0 0 0 0 0  
10: 0 0 0 0 0  
11: 0 0 0 0 0  
12: 0 0 0 0 0  
13: 0 0 0 0 0  
14: 0 0 0 0 0  
15: 0 0 0 0 0  
16: 0 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 202 (third/42)

1: 0 0 0 0 0  
2: 0 0 0 0 0  
3: 0 0 0 0 0  
4: 0 0 0 0 0  
5: 0 0 0 0 0  
6: 0 0 0 0 0  
7: 0 0 0 0 0  
8: 0 0 0 0 0  
9: 0 0 0 0 0  
10: 0 0 0 0 0  
11: 0 0 0 0 0  
12: 0 0 0 0 0  
13: 0 0 0 0 0  
14: 0 0 0 0 0  
15: 0 0 0 0 0  
16: 0 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 203 (third/43)

1: 0 0 0 0 0 0 0 0 0  
2: 0 0 0 0 0 0 0 0 0  
3: 0 0 0 0 0 0 0 0 0  
4: 0 0 0 0 0 0 0 0 0  
5: 0 0 0 0 0 0 0 0 0  
6: 0 0 0 0 0  
7: 0 0 0 0 0  
8: 0 0 0 0 0  
9: 0 0 0 0 0  
10: 0 0 0 0 0  
11: 0 0 0 0 0  
12: 0 0 0 0 0  
13: 0 0 0 0 0  
14: 0 0 0 0 0  
15: 0 0 0 0 0  
16: 0 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 204 (third/44)

1: 0  
2: 0  
3: 0  
4: 0  
5: 0  
6: 0 0 0 0 0 0 0 0 0  
7: 0 0 0 0 0 0 0 0 0  
8: 0 0 0 0 0 0 0 0 0  
9: 0 0 0 0 0 0 0 0 0  
10: 0 0 0 0 0 0 0 0 0  
11: 0 0 0 0 0 0 0 0 0  
12: 0 0 0 0 0  
13: 0 0 0 0 0  
14: 0 0 0 0 0  
15: 0 0 0 0 0  
16: 0 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 205 (third/45)

1: 0 0 0 0  
2: 0 0 0 0  
3: 0 0 0 0  
4: 0 0 0 0  
5: 0 0 0 0  
6: 0 0 0 0 0 0 0 0 0  
7: 0 0 0 0 0 0 0 0 0  
8: 0 0 0 0 0 0 0 0 0  
9: 0 0 0 0 0 0 0 0 0  
10: 0 0 0 0 0 0 0 0 0  
11: 0 0 0 0 0 0 0 0 0  
12: 0 0 0 0 0  
13: 0 0 0 0 0  
14: 0 0 0 0 0  
15: 0 0 0 0 0  
16: 0 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 206 (third/46)

1: 0 0 0 0 0  
2: 0 0 0 0 0  
3: 0 0 0 0 0  
4: 0 0 0 0 0  
5: 0 0 0 0 0  
6: 0 0 0 0 0 0 0 0 0  
7: 0 0 0 0 0 0 0 0 0  
8: 0 0 0 0 0 0 0 0 0  
9: 0 0 0 0 0 0 0 0 0  
10: 0 0 0 0 0 0 0 0 0  
11: 0 0 0 0 0 0 0 0 0  
12: 0 0 0 0 0  
13: 0 0 0 0 0  
14: 0 0 0 0 0  
15: 0 0 0 0 0  
16: 0 0 0 0 0  
1 2 3 4 5 6 7 8 9

209 (third/49)

|     |   |   |   |   |   |   |   |   |   |   |
|-----|---|---|---|---|---|---|---|---|---|---|
| 1:  | 0 | 0 | 0 | 0 |   |   |   |   |   |   |
| 2:  | 0 | 0 | 0 | 0 |   |   |   |   |   |   |
| 3:  | 0 | 0 | 0 | 0 |   |   |   |   |   |   |
| 4:  | 0 | 0 | 0 | 0 |   |   |   |   |   |   |
| 5:  | 0 | 0 | 0 | 0 |   |   |   |   |   |   |
| 6:  |   |   |   |   |   |   |   |   |   |   |
| 7:  |   |   |   |   |   |   |   |   |   |   |
| 8:  |   |   |   |   |   |   |   |   |   |   |
| 9:  |   |   |   |   |   |   |   |   |   |   |
| 10: |   |   |   |   |   |   |   |   |   |   |
| 11: |   |   |   |   |   |   |   |   |   |   |
| 12: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|     | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |   |

212 (third/52)

|     |   |   |   |   |   |   |   |   |   |
|-----|---|---|---|---|---|---|---|---|---|
| 1:  |   |   |   |   |   |   |   |   |   |
| 2:  |   |   |   |   |   |   |   |   |   |
| 3:  |   |   |   |   |   |   |   |   |   |
| 4:  |   |   |   |   |   |   |   |   |   |
| 5:  |   |   |   |   |   |   |   |   |   |
| 6:  | 0 | 0 | 0 | 0 |   |   |   |   |   |
| 7:  | 0 | 0 | 0 | 0 |   |   |   |   |   |
| 8:  | 0 | 0 | 0 | 0 |   |   |   |   |   |
| 9:  | 0 | 0 | 0 | 0 |   |   |   |   |   |
| 10: | 0 | 0 | 0 | 0 |   |   |   |   |   |
| 11: | 0 | 0 | 0 | 0 |   |   |   |   |   |
| 12: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|     | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

215 (third/55)

|     |   |   |   |   |   |   |   |   |   |
|-----|---|---|---|---|---|---|---|---|---|
| 1:  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2:  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3:  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5:  | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6:  | 0 | 0 | 0 | 0 |   |   |   |   |   |
| 7:  | 0 | 0 | 0 | 0 |   |   |   |   |   |
| 8:  | 0 | 0 | 0 | 0 |   |   |   |   |   |
| 9:  | 0 | 0 | 0 | 0 |   |   |   |   |   |
| 10: | 0 | 0 | 0 | 0 |   |   |   |   |   |
| 11: | 0 | 0 | 0 | 0 |   |   |   |   |   |
| 12: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16: | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|     | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

216 (third/56)

```

1:
2:
3:
4:
5:
6:      0 0 0 0 0
7:      0 0 0 0 0
8:      0 0 0 0 0
9:      0 0 0 0 0
10:     0 0 0 0 0
11:     0 0 0 0 0
12:    0 0 0 0 0 0 0 0 0 0
13:    0 0 0 0 0 0 0 0 0 0
14:    0 0 0 0 0 0 0 0 0 0
15:    0 0 0 0 0 0 0 0 0 0
16:    0 0 0 0 0 0 0 0 0 0
      1 2 3 4 5 6 7 8 9
    
```

217 (third/57)

```

1: 0 0 0 0
2: 0 0 0 0
3: 0 0 0 0
4: 0 0 0 0
5: 0 0 0 0
6:      0 0 0 0 0
7:      0 0 0 0 0
8:      0 0 0 0 0
9:      0 0 0 0 0
10:     0 0 0 0 0
11:     0 0 0 0 0
12:    0 0 0 0 0 0 0 0 0 0
13:    0 0 0 0 0 0 0 0 0 0
14:    0 0 0 0 0 0 0 0 0 0
15:    0 0 0 0 0 0 0 0 0 0
16:    0 0 0 0 0 0 0 0 0 0
      1 2 3 4 5 6 7 8 9
    
```

218 (third/58)

```

1:      0 0 0 0 0
2:      0 0 0 0 0
3:      0 0 0 0 0
4:      0 0 0 0 0
5:      0 0 0 0 0
6:      0 0 0 0 0
7:      0 0 0 0 0
8:      0 0 0 0 0
9:      0 0 0 0 0
10:     0 0 0 0 0
11:     0 0 0 0 0
12:    0 0 0 0 0 0 0 0 0 0
13:    0 0 0 0 0 0 0 0 0 0
14:    0 0 0 0 0 0 0 0 0 0
15:    0 0 0 0 0 0 0 0 0 0
16:    0 0 0 0 0 0 0 0 0 0
      1 2 3 4 5 6 7 8 9
    
```

219 (third/59)

```

1: 0 0 0 0 0 0 0 0 0 0
2: 0 0 0 0 0 0 0 0 0 0
3: 0 0 0 0 0 0 0 0 0 0
4: 0 0 0 0 0 0 0 0 0 0
5: 0 0 0 0 0 0 0 0 0 0
6:      0 0 0 0 0
7:      0 0 0 0 0
8:      0 0 0 0 0
9:      0 0 0 0 0
10:     0 0 0 0 0
11:     0 0 0 0 0
12:    0 0 0 0 0 0 0 0 0 0
13:    0 0 0 0 0 0 0 0 0 0
14:    0 0 0 0 0 0 0 0 0 0
15:    0 0 0 0 0 0 0 0 0 0
16:    0 0 0 0 0 0 0 0 0 0
      1 2 3 4 5 6 7 8 9
    
```

220 (third/60)

```

1:
2:
3:
4:
5:
6: 0 0 0 0 0 0 0 0 0 0
7: 0 0 0 0 0 0 0 0 0 0
8: 0 0 0 0 0 0 0 0 0 0
9: 0 0 0 0 0 0 0 0 0 0
10: 0 0 0 0 0 0 0 0 0 0
11: 0 0 0 0 0 0 0 0 0 0
12: 0 0 0 0 0 0 0 0 0 0
13: 0 0 0 0 0 0 0 0 0 0
14: 0 0 0 0 0 0 0 0 0 0
15: 0 0 0 0 0 0 0 0 0 0
16: 0 0 0 0 0 0 0 0 0 0
      1 2 3 4 5 6 7 8 9
    
```

221 (third/61)

```

1: 0 0 0 0
2: 0 0 0 0
3: 0 0 0 0
4: 0 0 0 0
5: 0 0 0 0
6: 0 0 0 0 0 0 0 0 0 0
7: 0 0 0 0 0 0 0 0 0 0
8: 0 0 0 0 0 0 0 0 0 0
9: 0 0 0 0 0 0 0 0 0 0
10: 0 0 0 0 0 0 0 0 0 0
11: 0 0 0 0 0 0 0 0 0 0
12: 0 0 0 0 0 0 0 0 0 0
13: 0 0 0 0 0 0 0 0 0 0
14: 0 0 0 0 0 0 0 0 0 0
15: 0 0 0 0 0 0 0 0 0 0
16: 0 0 0 0 0 0 0 0 0 0
      1 2 3 4 5 6 7 8 9
    
```

222 (third/62)

```

1:      0 0 0 0 0
2:      0 0 0 0 0
3:      0 0 0 0 0
4:      0 0 0 0 0
5:      0 0 0 0 0
6:    0 0 0 0 0 0 0 0 0 0
7:    0 0 0 0 0 0 0 0 0 0
8:    0 0 0 0 0 0 0 0 0 0
9:    0 0 0 0 0 0 0 0 0 0
10:   0 0 0 0 0 0 0 0 0 0
11:   0 0 0 0 0 0 0 0 0 0
12:   0 0 0 0 0 0 0 0 0 0
13:   0 0 0 0 0 0 0 0 0 0
14:   0 0 0 0 0 0 0 0 0 0
15:   0 0 0 0 0 0 0 0 0 0
16:   0 0 0 0 0 0 0 0 0 0
      1 2 3 4 5 6 7 8 9
    
```

223 (third/63)

```

1: 0 0 0 0 0 0 0 0 0 0
2: 0 0 0 0 0 0 0 0 0 0
3: 0 0 0 0 0 0 0 0 0 0
4: 0 0 0 0 0 0 0 0 0 0
5: 0 0 0 0 0 0 0 0 0 0
6: 0 0 0 0 0 0 0 0 0 0
7: 0 0 0 0 0 0 0 0 0 0
8: 0 0 0 0 0 0 0 0 0 0
9: 0 0 0 0 0 0 0 0 0 0
10: 0 0 0 0 0 0 0 0 0 0
11: 0 0 0 0 0 0 0 0 0 0
12: 0 0 0 0 0 0 0 0 0 0
13: 0 0 0 0 0 0 0 0 0 0
14: 0 0 0 0 0 0 0 0 0 0
15: 0 0 0 0 0 0 0 0 0 0
16: 0 0 0 0 0 0 0 0 0 0
      1 2 3 4 5 6 7 8 9
    
```

224 (third/64)

```

1:
2:
3:
4:
5:
6:
7:
8: 0 0 0 0 0 0 0 0 0 0
9:
10:
11:
12:
13:
14:
15:
16:
      1 2 3 4 5 6 7 8 9
    
```

## 225 (third/65)

1: 0  
2: 0  
3: 0  
4: 0  
5: 0  
6: 0  
7: 0  
8: 0 0 0 0 0  
9:  
10:  
11:  
12:  
13:  
14:  
15:  
16:  
1 2 3 4 5 6 7 8 9

## 226 (third/66)

1: 0  
2: 0  
3: 0  
4: 0  
5: 0  
6: 0  
7: 0  
8: 0 0 0 0 0 0 0 0 0  
9:  
10:  
11:  
12:  
13:  
14:  
15:  
16:  
1 2 3 4 5 6 7 8 9

## 227 (third/67)

1: 0  
2: 0  
3: 0  
4: 0  
5: 0  
6: 0  
7: 0  
8: 0 0 0 0 0  
9:  
10:  
11:  
12:  
13:  
14:  
15:  
16:  
1 2 3 4 5 6 7 8 9

## 228 (third/68)

1: 0  
2: 0  
3: 0  
4: 0  
5: 0  
6: 0  
7: 0  
8: 0 0 0 0 0  
9: 0  
10: 0  
11: 0  
12: 0  
13: 0  
14: 0  
15: 0  
16: 0  
1 2 3 4 5 6 7 8 9

## 229 (third/69)

1: 0  
2: 0  
3: 0  
4: 0  
5: 0  
6: 0  
7: 0  
8: 0 0 0 0 0 0 0 0 0  
9: 0  
10: 0  
11: 0  
12: 0  
13: 0  
14: 0  
15: 0  
16: 0  
1 2 3 4 5 6 7 8 9

## 230 (third/70)

1: 0  
2: 0  
3: 0  
4: 0  
5: 0  
6: 0  
7: 0  
8: 0 0 0 0 0  
9: 0  
10: 0  
11: 0  
12: 0  
13: 0  
14: 0  
15: 0  
16: 0  
1 2 3 4 5 6 7 8 9

## 231 (third/71)

1: 0  
2: 0  
3: 0  
4: 0  
5: 0  
6: 0  
7: 0  
8: 0 0 0 0 0  
9: 0  
10: 0  
11: 0  
12: 0  
13: 0  
14: 0  
15: 0  
16: 0  
1 2 3 4 5 6 7 8 9

## 232 (third/72)

1: 0  
2: 0  
3: 0  
4: 0  
5: 0  
6: 0  
7: 0  
8: 0 0 0 0 0 0 0 0 0  
9: 0  
10: 0  
11: 0  
12: 0  
13: 0  
14: 0  
15: 0  
16: 0  
1 2 3 4 5 6 7 8 9

## 233 (third/73)

1: 0  
2: 0  
3: 0  
4: 0  
5: 0  
6: 0  
7: 0  
8: 0 0 0 0 0  
9: 0  
10: 0  
11: 0  
12: 0  
13: 0  
14: 0  
15: 0  
16: 0  
1 2 3 4 5 6 7 8 9

## 234 (third/74)

1: 0  
2: 0  
3: 0  
4: 0  
5: 0  
6: 0  
7: 0  
8: 0  
9: 0  
10: 0  
11: 0  
12: 0  
13: 0  
14: 0  
15: 0  
16: 0  
1 2 3 4 5 6 7 8 9

## 235 (third/75)

1: 0  
2: 0  
3: 0  
4: 0  
5: 0  
6: 0  
7: 0  
8: 0  
9: 0  
10: 0  
11: 0  
12: 0  
13: 0  
14: 0  
15: 0  
16: 0  
1 2 3 4 5 6 7 8 9

## 236 (third/76)

1: 0  
2: 0  
3: 0  
4: 0  
5: 0  
6: 0  
7: 0  
8: 0  
9: 0  
10: 0  
11: 0  
12: 0  
13: 0  
14: 0  
15: 0  
16: 0  
1 2 3 4 5 6 7 8 9

## 237 (third/77)

1: 0  
2: 0  
3: 0  
4: 0  
5: 0  
6: 0  
7: 0  
8: 0 0 0  
9: 0  
10: 0  
11: 0  
12: 0  
13: 0  
14: 0  
15: 0  
16: 0  
1 2 3 4 5 6 7 8 9

## 238 (third/78)

1: 0  
2: 0  
3: 0  
4: 0  
5: 0  
6: 0  
7: 0  
8: 0 0 0 0 0 0 0 0 0  
9: 0  
10: 0  
11: 0  
12: 0  
13: 0  
14: 0  
15: 0  
16: 0  
1 2 3 4 5 6 7 8 9

## 239 (third/79)

1: 0  
2: 0  
3: 0  
4: 0  
5: 0  
6: 0  
7: 0 0 0  
8: 0 0 0 0 0 0 0 0 0  
9: 0 0 0  
10: 0  
11: 0  
12: 0  
13: 0  
14: 0  
15: 0  
16: 0  
1 2 3 4 5 6 7 8 9

## 240 (third/80)

1: 0  
2: 0  
3: 0  
4: 0  
5: 0  
6: 0  
7: 0 0 0  
8: 0 0 0 0 0 0 0 0 0  
9: 0 0 0  
10: 0  
11: 0  
12: 0  
13: 0  
14: 0  
15: 0  
16: 0  
1 2 3 4 5 6 7 8 9

## 241 (third/81)

1: 0  
2: 0  
3: 0 0 0  
4: 0 0 0 0 0  
5: 0  
6: 0  
7: 0  
8: 0  
9: 0  
10: 0  
11: 0  
12: 0  
13: 0  
14: 0  
15: 0  
16: 0  
1 2 3 4 5 6 7 8 9

## 242 (third/82)

1: 0  
2: 0  
3: 0  
4: 0  
5: 0  
6: 0  
7: 0  
8: 0  
9: 0  
10: 0  
11: 0  
12: 0  
13: 0 0 0 0 0  
14: 0 0 0  
15: 0  
16: 0  
1 2 3 4 5 6 7 8 9

## 243 (third/83)

1: 0 0 0 0 0 0  
2: 0 0 0 0 0 0  
3: 0 0 0 0 0 0  
4: 0 0 0 0 0 0  
5: 0 0 0 0 0 0  
6: 0 0 0 0 0 0  
7: 0 0 0 0 0 0  
8: 0 0 0 0 0 0  
9: 0 0 0 0 0 0  
10: 0 0 0 0 0 0  
11: 0 0 0 0 0 0  
12: 0 0 0 0 0 0  
13: 0 0 0 0 0 0  
14: 0 0 0 0 0 0  
15: 0 0 0 0 0 0  
16: 0 0 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 244 (third/84)

1: 0 0 0 0 0 0  
2: 0 0 0 0 0 0  
3: 0 0 0 0 0 0  
4: 0 0 0 0 0 0  
5: 0 0 0 0 0 0  
6: 0 0 0 0 0 0  
7: 0 0 0 0 0 0  
8: 0 0 0 0 0 0  
9:  
10:  
11:  
12:  
13:  
14:  
15:  
16:  
1 2 3 4 5 6 7 8 9

## 245 (third/85)

1:  
2:  
3:  
4:  
5:  
6:  
7:  
8:  
9: 0 0 0 0 0 0  
10: 0 0 0 0 0 0  
11: 0 0 0 0 0 0  
12: 0 0 0 0 0 0  
13: 0 0 0 0 0 0  
14: 0 0 0 0 0 0  
15: 0 0 0 0 0 0  
16: 0 0 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 246 (third/86)

1: 0 0 0 0 0 0  
2:  
3: 0 0 0 0 0 0  
4:  
5: 0 0 0 0 0 0  
6:  
7: 0 0 0 0 0 0  
8:  
9: 0 0 0 0 0 0  
10:  
11: 0 0 0 0 0 0  
12:  
13: 0 0 0 0 0 0  
14:  
15: 0 0 0 0 0 0  
16:  
1 2 3 4 5 6 7 8 9

## 247 (third/87)

1:  
2:  
3:  
4:  
5:  
6:  
7:  
8:  
9: 0 0 0 0 0 0  
10:  
11: 0 0 0 0 0 0  
12:  
13: 0 0 0 0 0 0  
14:  
15: 0 0 0 0 0 0  
16:  
1 2 3 4 5 6 7 8 9

## 248 (third/88)

1: 0 0 0 0 0 0  
2:  
3: 0 0 0 0 0 0  
4:  
5: 0 0 0 0 0 0  
6:  
7: 0 0 0 0 0 0  
8:  
9:  
10:  
11:  
12:  
13:  
14:  
15:  
16:  
1 2 3 4 5 6 7 8 9

## 249 (third/89)

1: 0 0 0 0 0 0 0 0  
2: 0 0 0 0 0 0 0 0  
3: 0 0 0 0 0 0 0 0  
4: 0 0 0 0 0 0 0 0  
5: 0 0 0 0 0 0 0 0  
6: 0 0 0 0 0 0 0 0  
7: 0 0 0 0 0 0 0 0  
8: 0 0 0 0 0 0 0 0  
9: 0 0 0 0 0 0 0 0  
10: 0 0 0 0 0 0 0 0  
11: 0 0 0 0 0 0 0 0  
12: 0 0 0 0 0 0 0 0  
13: 0 0 0 0 0 0 0 0  
14: 0 0 0 0 0 0 0 0  
15: 0 0 0 0 0 0 0 0  
16: 0 0 0 0 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 250 (third/90)

1: 0 0 0 0 0 0 0 0  
2: 0 0 0 0 0 0 0 0  
3: 0 0 0 0 0 0 0 0  
4: 0 0 0 0 0 0 0 0  
5: 0 0 0 0 0 0 0 0  
6: 0 0 0 0 0 0 0 0  
7: 0 0 0 0 0 0 0 0  
8:  
9:  
10:  
11:  
12:  
13:  
14:  
15:  
16:  
1 2 3 4 5 6 7 8 9

## 251 (third/91)

1:  
2:  
3:  
4:  
5:  
6:  
7:  
8: 0 0 0 0 0 0 0 0  
9: 0 0 0 0 0 0 0 0  
10: 0 0 0 0 0 0 0 0  
11: 0 0 0 0 0 0 0 0  
12: 0 0 0 0 0 0 0 0  
13: 0 0 0 0 0 0 0 0  
14: 0 0 0 0 0 0 0 0  
15: 0 0 0 0 0 0 0 0  
16: 0 0 0 0 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 252 (third/92)

1: 0 0 0 0 0 0 0 0 0 0  
2: 0 0 0 0 0 0 0 0  
3: 0 0 0 0 0 0 0 0 0 0  
4: 0 0 0 0 0 0 0 0  
5: 0 0 0 0 0 0 0 0 0 0  
6: 0 0 0 0 0 0 0 0  
7: 0 0 0 0 0 0 0 0 0 0  
8: 0 0 0 0 0 0 0 0  
9: 0 0 0 0 0 0 0 0 0 0  
10: 0 0 0 0 0 0 0 0  
11: 0 0 0 0 0 0 0 0 0 0  
12: 0 0 0 0 0 0 0 0  
13: 0 0 0 0 0 0 0 0 0 0  
14: 0 0 0 0 0 0 0 0  
15: 0 0 0 0 0 0 0 0 0 0  
16: 0 0 0 0 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 253 (third/93)

1: 0 0 0 0 0 0 0 0 0 0  
2: 0 0 0 0 0 0 0 0  
3: 0 0 0 0 0 0 0 0 0 0  
4: 0 0 0 0 0 0 0 0  
5: 0 0 0 0 0 0 0 0 0 0  
6: 0 0 0 0 0 0 0 0  
7: 0 0 0 0 0 0 0 0 0 0  
8:  
9:  
10:  
11:  
12:  
13:  
14:  
15:  
16:  
1 2 3 4 5 6 7 8 9

## 254 (third/94)

1:  
2:  
3:  
4:  
5:  
6:  
7:  
8: 0 0 0 0 0 0 0 0  
9: 0 0 0 0 0 0 0 0 0 0  
10: 0 0 0 0 0 0 0 0  
11: 0 0 0 0 0 0 0 0 0 0  
12: 0 0 0 0 0 0 0 0  
13: 0 0 0 0 0 0 0 0 0 0  
14: 0 0 0 0 0 0 0 0  
15: 0 0 0 0 0 0 0 0 0 0  
16: 0 0 0 0 0 0 0 0  
1 2 3 4 5 6 7 8 9

## 255 (third/95)

1:  
2:  
3:  
4:  
5:  
6:  
7:  
8:  
9:  
10:  
11:  
12:  
13:  
14:  
15:  
16:  
1 2 3 4 5 6 7 8 9

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