

CR32 Unimaster *Multiprocessor*

UNIX multiuser • 32 bit • Multiprocessor extendable architecture • Local area net •
Communication and fault tolerant capability • Full suite of compilers and applications

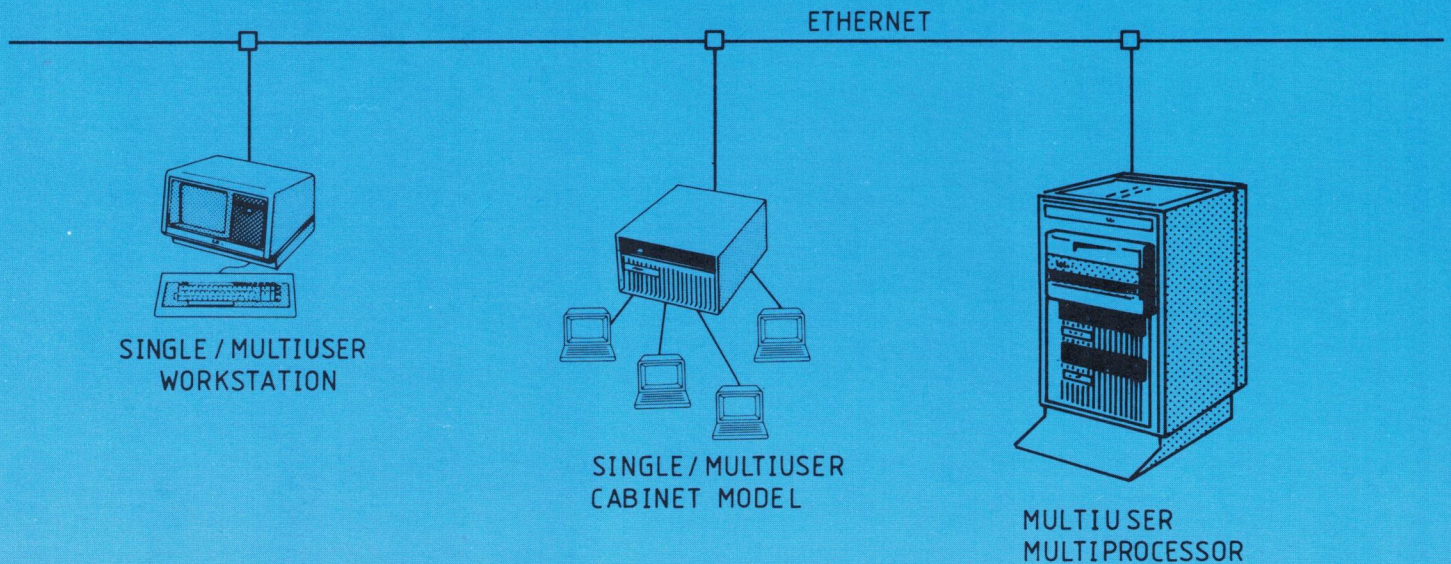


Christian Rovsing A/S
Copenhagen · Denmark

CR32 High Performance, Affordable UNIX Workhorse

The CR32 family is an integrated line of versatile 32 bit computers available for Distributors, OEM/Systems Integrators and end users in advanced business, scientific, industrial, medical, communications, government and defense applications.

The CR32 family consists of the single or multiuser cabinet model, the tabletop workstation model, and the larger rackbased multiprocessor model. All members of the CR32 family are 32/16 bit turnkey systems with Unix. They can »standalone« or be interconnected via Ethernet.

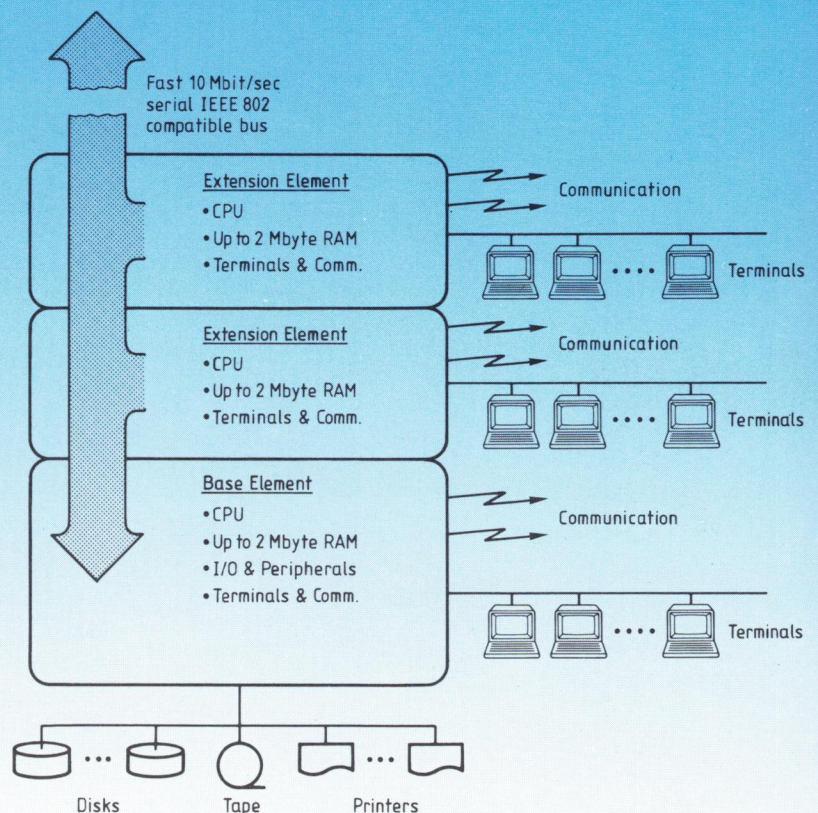


The CR32 Family

All CR32 models are based on the M68000 CPU and an internal bus compatible with IEEE 796 standard (Multibus). The internal bus provides access to a maximum of 1.25-2M byte of local RAM, as well as controllers for a full range of peripherals (disks, terminals, printers, etc.), communication ports, and local area networks.

- CR32/100 Single/Multiuser Workstation model for 1-8 users.
- CR32/200 Single/Multiuser Cabinet model for 1-8 users, tabletop or rackmountable, height 6U (26.7 cm).
- CR32/300 Multiuser Multiprocessor Computer for up to 64 users, consists of base processing element, 6U (as CR32/200 above) and up to 8 extension processing elements, 6U.

To further Extension Elements (up to 8)



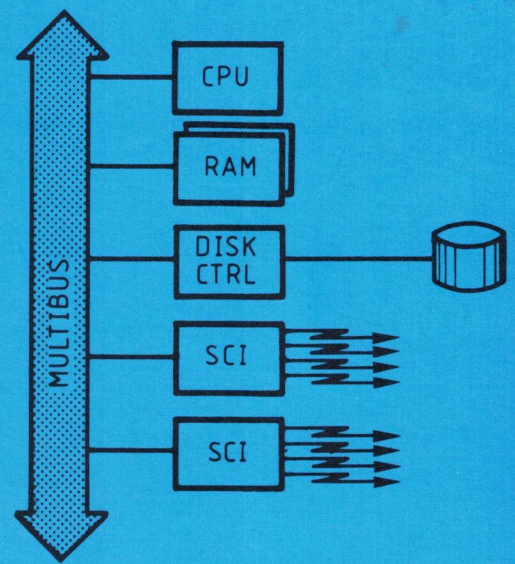
Data Communication

The CR32 UNIMASTER hardware and software is fully compatible with the Christian Rovsing communication systems, which means that our vast experience in this field is available to the CR32 UNIMASTER user/system house, including the most used data communication and mainframe protocols.

The unique capabilities of the CR32 UNIMASTER in data communication are achieved by distributing the communication protocol and line handling to 4 channel SCI's (Serial Communication Interface boards) with V24, X21 and Current Loop.

The following communication protocols are currently supported by the SCI board:

- ASYNC
- BSC (IBM)
- SDLC (IBM)
- HDLC
- X25
- X21
- C02 (ICL)
- C03 (ICL)
- NCR 796
- TC500 (Burroughs)



Operating System Environment

The software of the CR32 UNIMASTER is based on a solid foundation, the UNIX operating system that has become the de facto industry standard for minicomputers, and provides immediate access to a full range of development tools.

A full suite of high-level language

compilers, including Pascal, COBOL, C, FORTRAN, and Ada, is available **now** for efficient program development.

It is not just a look-alike-UNIX, but the standard UNIX version 7 with the University of California/Berkeley enhancements providing an excellent development environment.

Furthermore, Networked UNIX is fully supported **now**, connecting members of the CR32 family via Ethernet directly at the operating system (UNIX) level. During 1983 interconnection of VAX, PDP11 and CR32 will also be supported.

Advanced UNIX Features:

- C-shell. Advanced command language interpreter with all the good features of other shells plus a history mechanism.
- Diffdir. Differential file comparator working on directories recursively.
- Head, last. List the first or last lines of a file.
- SCCS. Software Code Control System providing mechanisms for comprehensive software auditing and versioning.

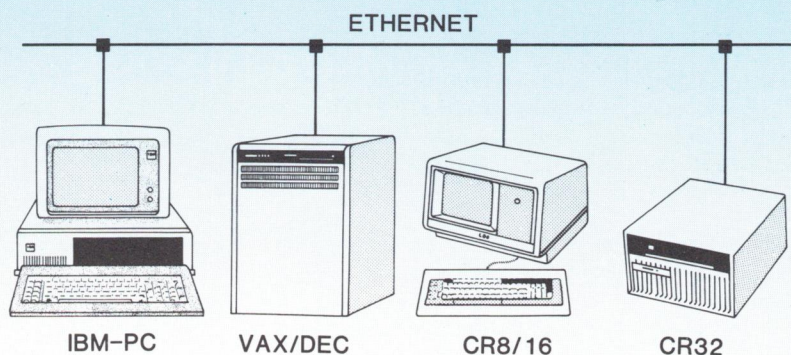
The Unique Networked UNIX Features Include:

- login select remote host using logical names.
- cd select current working directories on remote or local system.
- send transfer of files from local to remote system.
- recv transfer of files from the remote to local system.
- exec execute a program on the remote or local system.
- pipe execute two programs -one remote and one local, with the output of one program directed to the input of the other
- mail send a message to a user on a remote system.
- stat list current status.
- help list commands and syntax.

CR32 Connection To Other Manufactures

Christian Rovsing delivers I/F board and software to connect different processors and operating systems to the CR32 via Ethernet. The following systems are currently supported with the same features as described under Networked UNIX:

- IBM/PC under PC-DOS
- VAX under VMS and UNIX
- PDP-11 under RSX and UNIX
- CR8/16 under CP/M, MP/M and PC-DOS.



User Environment

The end user will enjoy the flexibility and sophisticated facilities of UNIX, but the CR32 UNIMASTER provides much more: advanced textprocessing, Electronic Spread-sheet (financial planning), and, through the UNIX CP/M emulator, the door is open to the world's largest inventory of business, management and personal applications.

Unicalc Electronic Spreadsheet

Financial modelling for business planning, budgetting and forecasting is easily performed with the Unicalc electronic spreadsheet. Unicalc is a comprehensive software tool that allows fast calculation of time consuming tables and further simplifies calculations by providing features such as SINE, COSINE, SUM, MEAN, Standard Deviation and Net Present Value. Unicalc also facilitates the manipulation of data by allowing the operator to make changes at any time and by answering »What if?« questions. Unicalc makes it easier for both the programmer and the businessman to make accurate projections and better decisions.

Relational Database System

A multi-purpose relational database management system provides an excellent tool for personnel files, stock control/inventory, questionnaire analysis, general ledger, quality control etc. The INGRES database management system includes:

- Fully integrated Data Dictionary.
- High-level data manipulation language called QUEL in which users say what they want done rather than how to do it.
- Advanced facilities for input/output via forms.
- Report Writer allows easy specification of report formats and data.
- Report Generator produces reports according to specifications given.
- Full recovery and journaling facilities.
- Access control for the individual user and sophisticated integrity constraints.

EasyType Word Processing

Advanced word processing facilities are available through the EasyType application package. EasyType is menu driven for easy use and provides numerous facilities like chec-

king for misspelled words, auto-hyphenation and a search and replace function. A full math package is also included for easy production of tables.

Full Commercial EDP Package

The Danish developed commercial package available with CR32 is based on Danish bookkeeping practice and communicates with the users in Danish.

The package includes:

- General Ledger
- Accounts Receivable
- Accounts Payable
- Order Entry
- Inventory Control

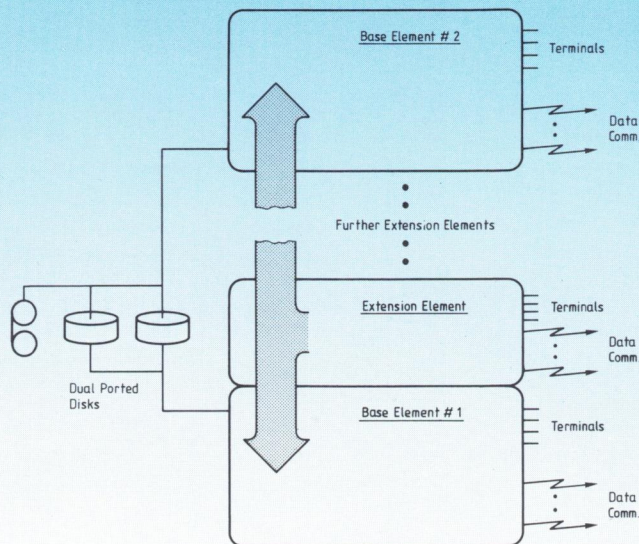
BMDP Statistical Software Package

The BMDP statistical software package provides the professional statistician with an essential tool for data analysis. The 40 programs available in the BMDP package are identical to those provided for mainframe operation and includes the following features:

- Data description
- Plots and histograms
- Frequency tables
- Missing values
- Regression
- Nonlinear regression
- Analysis of variance and covariance
- Nonparametric analysis
- Cluster analysis
- Multivariate analysis
- Survival analysis
- Time series

CR32 Fault-tolerant Capability

The modular architecture of the CR32 UNIMASTER provides excellent fault-tolerant capabilities as each Processing Element has its own power supply, cooling fans, internal bus, etc. The external bus concept makes the individual units insensitive to an error in one unit and lets the other units proceed undisturbed.

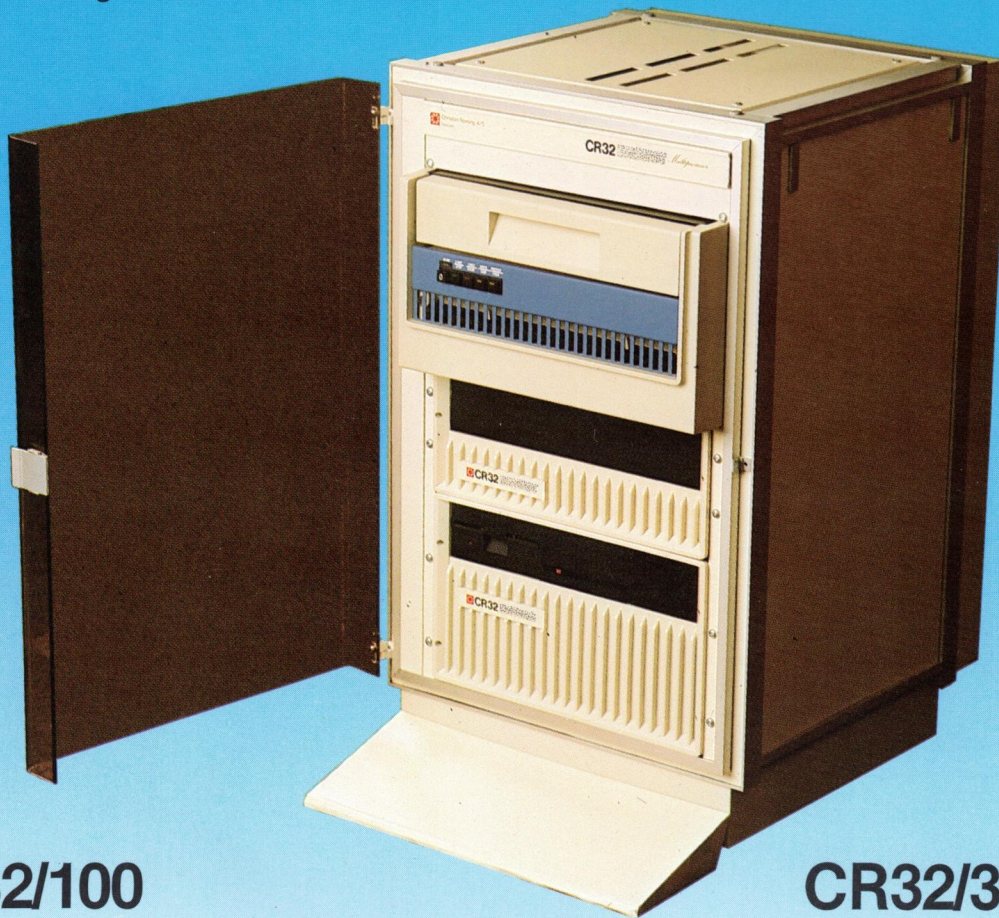




CR32/100 Single/Multiuser Workstation



CR32/200 Single/Multiuser Cabinet



CR32/300
Multiuser
Multiprocessor
Computer

CR32/100 Workstation Model

The Integrated Workstation model is the all-in-one system that provides the same facilities as the cabinet model below, but integrated into a versatile intelligent terminal with advanced video features and detachable keyboard. The integral card cage provides space for 4 more Multibus compatible cards.

CR32/200 Cabinet Model

The CR32 UNIMASTER tabletop model is the compact solution for smaller systems. The cabinet contains the integrated Base Element with CPU, 256K byte RAM extendable up to 2M byte, floppy disk drive, 21M byte Winchester disk, and communication channels for terminals or printers. The card cage provides space for 6 more Multibus compatible cards.

CR32/300 Multiprocessor Computer

The CR32 Multiprocessor Computer is based on a Base Processing Element identical to CR32/200 above extended by Extension Processing Elements through the 10M bit, serial extension bus. This provides for a fast reliable connection and allows for easy field expansion by addition of further processing elements.

CR 32/100 Workstation	CR 32/200 Cabinet	CR 32/300 Multiprocessor Extension Element (requires CR 32/200 + Ethernet Ctrl., one or more Extension elements may be added)	OPTIONS
1,4 or 8 users Includes: <ul style="list-style-type: none"> o M68000 CPU o 256 kb.-2Mb. RAM o 2 RS-232C serial I/O channels o Floppy disk controller o 5¼ inch floppy disk, 600K byte formatted o Winchester disk controller o 21 M byte (formatted) Winchester disk o 12 inch green phosphor monitor, 25 lines x 80 characters o VT 100/VT 52-compatible video controller with split screen feature o 83-key detachable keyboard o Bell Lab, UNIX V7 multiuser version with Berkeley enhancements o C language 	1,4 or 8 users Includes: <ul style="list-style-type: none"> o M68000 CPU o 256 kb.-2Mb. RAM o 2 RS-232C serial I/O channels o Floppy disk controller o 5¼ inch floppy disk, 600K byte formatted o Winchester disk controller o 21 M byte (formatted) Winchester disk o Bell Lab, UNIX V7 multiuser version with Berkeley enhancements o C language 	1,4 or 8 users Includes: <ul style="list-style-type: none"> o M68000 CPU o 256 kb.-2Mb. RAM o 2 RS-232C serial I/O channels o Winchester disk controller o 21 M byte (formatted) Winchester disk o External Bus Controller (Ethernet). o Bell Lab, Networked UNIX V7 multiuser version with Berkeley enhancements o C language 	HARDWARE <ul style="list-style-type: none"> o Memory in 0.5 or 1 M byte increments. Max. 2 M byte in each processing element. o SMD-type large disks and controller for up to 4 drives. Capacity: 40, 80, 150 or 300 M byte per drive. o Magnetic Tape Station and controller. o Serial Communication Interface. 4 channels, on-board Z80A CPU, 32K RAM, ROM. o 4 channel RS232-C serial I/O board. o External Bus Controller conforming to IEEE 802 (Ethernet) o 28 M byte (formatted) Winchester disk
8 Slot Multibus (4 free) AC Input: 105-125 VAC, 60Hz, 4A 210-250 VAC, 50Hz, 2A 300 W maximum DC Output: + 5V: 25A + 12: liniar 4A, motors 4A - 12V: 3A - 5V: .5A 225W maximum Height: 370 mm Width: 520 mm Depth: 640 mm (with keyboard), 490 mm (without keyboard) Weight: 34 kg.	10 Slot Multibus (6 free) AC Input: 94-132 VAC, 45-66Hz, 3,6A 187-265 VAC, 45-66Hz, 1,8A 400 W maximum DC Output: + 5V: 60A - 12V: 24A - 12V: 3A 300W maximum Height: 267 mm (6U) Width: 445 mm (19") Depth: 570 mm Weight: 21 kg	10 Slot Multibus (7 free) AC Input: 94-132 VAC, 45-66Hz, 3,6A 187-265 VAC, 45-66Hz, 1,8A 400 W maximum DC Output: + 5V: 60A - 12V: 24A - 12V: 3A 300W maximum Height: 267 mm (6U) Width: 445 mm (19") Depth: 570 mm Weight: 21 kg.	SOFTWARE <ul style="list-style-type: none"> o Networked UNIX (Ethernet) o M68000 Assembler o Basic o Pascal o Cobol o Fortran 77 o Ada o UNIX CP/M emulator o Ingres Relational Database system o Unicalc spreadsheet o EasyType Word Processing o General business package o BMDP Statistical Package

Trademarks: UNIX, C language - Bells Labs. • Multibus - Intel • VT100, VT 52, PDP11, VAX - Digital Equipment Corp. • Ethernet - Xerox Corp. • Z80 - Zilog Corp. • Easy Type - Callan Data Systems • Unicalc - Lattice, Inc. • Ada - U.S. Government • UNIMASTER - Christian Rovsing A/S

Christian Rovsing A/S Corporate Profile

Christian Rovsing A/S was established in 1963, and today is one of the fastest growing computer manufacturers, with offices in the UK, USA, Canada and Holland. The company employs a staff of over 1000 and has an annual growth rate exceeding 40%.

Christian Rovsing A/S designs, manufactures and markets data com-

munications equipment and networks based on the company's own mini and microcomputers. The products are delivered worldwide on a broad range of applications including commercial as well as defence communication systems and networks. Other product areas covered by the company include Local Area Networks, Office Automation systems, aerospace Electronics and commercial EDP systems.

To help you capitalise on all Christian Rovsing A/S' products, we provide comprehensive customer support and maintenance. A wide range of training courses are also available. On-site courses may be arranged at your request.

For further information please contact Christian Rovsing A/S, or your local office.

Christian Rovsing A/S
Lautrupvang 1
DK-2750 Ballerup, Denmark
Phone: + 45 265 11 44
Telex: 35111 cr dk
Telefax: + 45 265 43 73

Christian Rovsing A/S (Århus)
Klamsagervej 6
DK-8230 Åbyhøj
Phone: + 45 625 08 88

Christian Rovsing A/S (Herning)
Herning Centret
Mercurvej 104
DK-7400 Herning
Phone: + 45 7 2255 22

Christian Rovsing A/S (Randers)
Kirkegade 13
DK-8900 Randers
Phone: + 45 641 12 11

Christian Rovsing Systems (UK) Ltd.
371 Horn Lane
London W3 0BY
England
Phone: (1) 993 6466
Telex: 947157 crasuk g

CR Computer System Inc.
5456 McConnel Avenue
Suite 182
Los Angeles
California 90066,
U.S.A.
Phone: 213-822-512
Telex: 910-706-304
Telefax: 213-822-3098

Christian Rovsing Corporation
1337 Thousand Oaks Blvd. suite 220
Thousand Oaks
California 91362
U.S.A.
Phone: 805-497-6722
Telex: 910-336-5733
Telefax: 805-497 8271

CRISA - Comunicaciones y Redes
De Informatica S.A.
Pº de la Castellana 141
planta 17
Madrid 16
Spain
Phone: 1-450 3009
Telex: 48930 cres

Christian Rovsing International B.V.
Langstraat 58 B
2242 KN Wassenaar
The Netherlands
Phone: 1751-19230/34323
Telex: 044-34323

Christian Rovsing A/S
Maridalsveien 160
Oslo 4
Norway
Phone: (02) 239390
Telefax: (02) 2385 14