

Boot prom for the CPU 68020.

Before using the 68020 in a system, you must be sure that the boot proms of the DIOC 0400 and the DIOC2 1100 have the following versions:

DIOC 0400 - DCBOOT 861107 or later.
DIOC1 1100 - D2BOOT 860210 or later.

Self test after reset.

Included in the boot prom of the CPU 68020 is a thorough self test, which includes the following items:

1. Running MC 68020 internal confidence test.
2. Testing the Address Space Register.
3. Testing the MMU memory, high speed.
4. Initializing and testing memory from 0 - 100000, before copying the content of the prom to the memory.
5. Determining the actual memory size.
6. Initializing and testing memory from 100000 to top of memory, found in 5.
7. Testing program cache, data cache and physical address cache comparator.
8. Running MC 68881 FPC internal confidence test.

During the self test the front panel display will change according to the test currently running and the status of the test. The following table shows you the possible display codes. F in the first digit means Failed. P in the first digit means Passed.

Test	Failed	Passed
Test stuck at high or low bits	F0	P0
Test data registers	F1	P1
Test control registers	F2	P2
Test address registers	F3	P3
Test status bits	F4	P4
68020 instruction test	F5	P5
Testing Address Space Register	F7	P7
Testing MMU memory	F8	P8
Testing memory 0 - 100000	F9	P9
Just before copying prom		PA
Just after copying prom		PC
Testing caches		Pd
Determining memory size		PE
Testing memory to top		PF
Testing MC 68881 FPC		bo
Data error in memory	FA	
Single error in memory	FC	
Error in cache test	Fd	
Double fault in memory	FE	

When the display shows Pd, the CPU will enable the I/O bus in and then be ready to be booted. However it will continue the self test until finished. If any errors occur the CPU will not execute the program, that has been loaded. If no errors occur the CPU will start the program, which could be either the operating system or the diagnostic programs. If no program is loaded the CPU will write 'bo' in the display, indicating that it has passed the self test. If any errors occur, which means the display will not change to 'bo', you should try to type the select sequence. It is possible that you will get further information about the error.

Diagnostic program in the boot prom.

The diagnostic program is contained in the boot prom, and if the CPU passes the self test and you see 'bo' in the display, you can type the select sequence on the terminal. That gives you a debugging program and the following message:

```
DDE 68020 Debugger/Diagnostics Version 2.3 - 861107
FPC passed (failed) test
DDE020bug >
```

If the CPU fails the self test and you have tried to type the select sequence, you should try to type CTRL B and then the select sequence. That should give you the debugger also.

Using the help facility HE gives you an overview of the commands. The command DP will give you the diagnostic program, which is a different version than the one on the floppy disk. The prompt on the terminal is:

```
cpu020 u prom > , where u is the unit number.
```

When selecting Q in the menu, you will get back to the debugger instead of booting the computer.

When the diagnostic program has been booted from the floppy disk you can type in the select sequence for the CPU you want to test, and it should respond with the following message on the terminal:

```
cpu020 u > , where u is the unit number
```

This message indicates that the initialization was successfully completed and that you can proceed with the more sophisticated parts of the test. In order to get the menu just type M and the menu will be displayed. From this menu you can select several tests.

The following is a list of display values from the diagnostic program.

bE in the display indicates a bus error.
AE in the display indicates an address error.
EE in the display indicates any other exception.

NOTE.

The terminal you use must be configured to:

7 data bits
even parity

Til Klokkeholm, serviceafdelingerne.
Fra MUDV.

Ny bootprom til DIOC 0400.

Hermed udsendes en ny boot prom til DIOC 0400. Denne prom erstatter både DBOOT og DCDRONE prommerne. Der er altså nu kun en type prom til DIOC 0400.

Denne prom skal sidde i DIOC'en, hvis DIOC'en er den enhed, der booter maskinen og hvis der er enten en NIOC eller en 68020 CPU installeret. Hvis DIOC'en ikke er den enhed, der booter, behøver prommen ikke at udskiftes.

Den nye prom har navnet DCBOOT og versions dato 861107.

861113 lbp
diocprom

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Boot prommen til CPU 68020 indeholder en selvtest som afleverer nogle oplysninger, som kan bruges af operativsystemet.

Følgende afleveres:

<u>Adresse</u>	<u>size</u>	<u>indhold</u>
00003040	long	antal bytes lager. 0 hvis dobbelt fejl detekteret. Afrundet til 8 k grænse hvis data fejl detekteret.
00003044	long	00000000, hvis lagertest OK. Error adresse, hvis enkelt fejl detekteret. Error adresse, hvis data fejl detekteret.
00003048	long	00000000, hvis selvtest OK eller enkelt fejl. FFFFFFFF, hvis fatal fejl, medfører at 68020 ikke booter.
0000304C	word	0000, hvis cache test OK. FFFF, hvis fejl i cache test.
0000304E	word	0000, hvis FPC test OK. > 0, hvis FPC test har fejlet.

NB.

Ny label til disassembler: 00007AB2