

DataBoard

4107-0X

BESKRIVNING

**WINCHESTER
INTERFACE**

4107 - 0X(B)

feb 86

**DATA
INDUSTRIER AB**

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DESCRIPTION

The DataBoard 4107 Winchester interface provides efficient disc handling, using an on-board Z80A processor and an on-board DMA.

It is intended for use with DataBoard single board computers or ABC800/DTC, which do not have DMA in the host system.

The DMA enables simultaneous data transfer between the Winchester disc and the 4107 and between the 4107 and the ABC800/DTC.

The 4107 includes 6 sector buffers in RAM. For more buffers, the 2K RAM chip in the 28 pin socket is replaced by a larger RAM chip (MOSTEK ByteWyde) and the S3 jumper is moved. No software change is needed. With 8K RAM, 30 sector buffers are available.

The buffers provide quick access with the following method:

- a) Two consecutive sectors are always read into the buffers at each physical disc access.
- b) Often used sectors are kept in the buffers.

By this means the data transfer of large files, stored in contiguous sectors are done with less than 10 ms/ sector.

4107-01 has a 4K EPROM and handles the controller types: XEBEC, Western Digital, Adaptec, Rodime for 5" or 3.5" winchester drives and tape streamers.

4107-00 with a 2K EPROM handles only winchester drives with XEBEC or Western Digital controllers.

BESKRIVNING

DataBoard 4107 Winchester-interface ger effektiv skiv-minneshantering, genom att en Z80A processor och en DMA används lokalt på kortet.

Kortet är avsett för DataBoard enkortsdatorer eller ABC800/DTC, vilka inte har egen DMA-hantering.

DMA-kretsen gör att dataöverföring kan ske samtidigt mellan Winchesterenheten och 4107, som mellan 4107 och värddatorn.

4107 har buffrar i RAM för 6 sektorer. Fler buffrar erhålls genom att byta 2K RAM mot 8K RAM i den 28-stifts sockel som finns (MOSTEK ByteWyde) och flytta bygel S3. Inga programändringar krävs. Med 8K RAM fås 30 sektorers buffer.

Buffrarna ger snabb access med följande metod:

- a) Två konsekutiva sektorer läses alltid in till buffrarna vid varje läs-access.
- b) Ofta använda sektorer bevaras i buffrarna.

Genom denna metod kan dataöverföring av stora filer, som lagrats i konsekutiva sektorer, överföras med mindre än 10 ms/ sektor.

4107-01 har en 4K EPROM och hanterar controller-typerna: XEBEC, Western Digital, Adaptec, Rodime för 5" eller 3.5" winchesterenheter och tape streamers.

4107-00 med 2K EPROM hanterar endast winchesterenheter med XEBEC eller Western Digital controller.

The format used as standard on the winchester disc has 256 bytes/sector.

Standardformatet på Winchester-skivminnet har 256 bytes/sector.

A logical disc device contains a maximum of 65535 sectors (about 16M bytes), limited by the 16-bit format of the DOS-pointer. Larger winchester units are divided into several logical units, using an optional controller EPROM on the interface (4107-01).

En logisk skivenhet kan ha max 65535 sektorer (ca 16 Mbytes), begränsat av 16-bitsformatet på pekaren i DOSet. Större Winchesterenheter delas upp i flera logiska enheter, genom att använda ett annat styr-PROM på interfacet (4107-01).

Example: A 20 MB winchester is accessed as two devices with the names HDO: and HD1:.

Exempel: En 20 MB winchester behandlas som två 10 MB enheter med namnen HDO: och HD1:.

Up to two physical winchester drives can be connected to the 4107 interface, but both must be of the same type. As an exception, a tape streamer with ADAPTEC controller can be connected in parallel with a winchester using ADAPTEC. However this requires special driver programs in the host.

Upp till två fysiska winchester enheter kan anslutas till kortet 4107, men båda måste vara av samma typ. Som ett undantag kan en band-streamer med ADAPTEC controller anslutas parallellt med en winchester som också har en ADAPTEC controller. Men detta kräver speciellt drivprogram i värddatorn.

The parameters for the drive type is given as the last 23 bytes in the adapter EPROM on the 4107. See the following table. The table address is 7E8 Hex in a 2K EPROM (4107-00) and FE8 Hex in a 4K EPROM (4107-01).

Parametrarna för enhetstyperna ges i 23 bytes i slutet av adapter EPROM:et på 4107. Se följande tabell. Tabellens adress är 7E8 Hex i ett 2K EPROM (4107-00) och FE8 Hex i ett 4K EPROM (4107-01).

Drive parameters table:

Tabell över enhetsparametrar:

| Offset | Name | Description |
|--------|----------|--|
| 0 Hex | INTERLV | Format interleave factor |
| 1 Hex | CYLDR | Number of cylinders on each logical unit |
| 3 Hex | COMLOWC | Start cylinder for low current on write |
| 5 Hex | COMPPRE | Start cylinder for precompensation on write |
| 7 Hex | DRIVEVOL | Number of logical units on each physical drive |
| 8 Hex | ----- | Not used |
| 0A Hex | ----- | Not used |
| 0C Hex | ----- | Not used |
| 0E Hex | ----- | Not used |
| 10 Hex | CYLSIDE- | Number of cylinders on physical drive |
| 12 Hex | HEADS--- | Number of heads per cylinder |
| 13 Hex | SECTRK | Number of sectors per track |
| 14 Hex | TYPE | Disc drive type (Not used in 4107-00) |
| 15 Hex | FORCESTR | Forced streaming counter (Not used in 4107-00) |
| 16 Hex | ADAPSTPR | Adaptec step rate code (Not used in 4107-00) |
| 17 Hex | STEPRATE | Step rate (XEBEC version) |

The 4107 interface shall as standard have the channel select code 36 dec= 44 octal.

Interfacet 4107 ska som standard ha kortvalet 36 dec = 44 oktalt.

Power:

+5V <1000 mA

Kraft:

+5V <1000 mA

Jumpers:

S1abcd: Card select 40-57 octal
For bit value "1" the corresponding jumper is opened.
40 octal is added to the jumper value.

Byglingar:

S1abcd: Kortval 40-57 oktalt
För bitvärde "1" öppnas motsvarande bygel.
40 oktalt adderas till det byglade värdet.

Example: CS = 44.

| | | |
|-------------|--------|---|
| Bit 0 = S1a | Value= | 0 |
| 1 = S1b | | 0 |
| 2 = S1c | | 1 |
| 3 = S1d | | 0 |

Exempel: CS = 44.

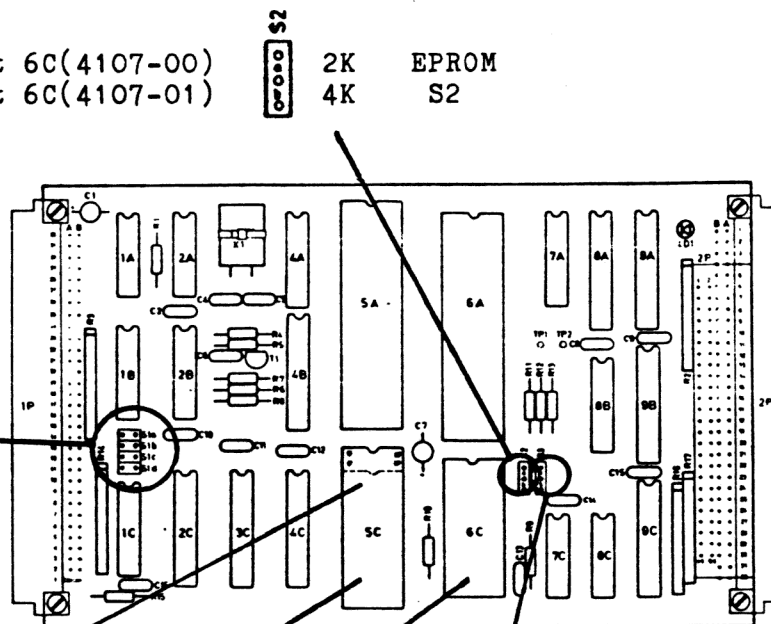
| | | |
|-------------|--------|---|
| Bit 0 = S1a | Value= | 0 |
| 1 = S1b | | 0 |
| 2 = S1c | | 1 |
| 3 = S1d | | 0 |

S2a: 2K EPROM at 6C(4107-00)
S2b: 4K EPROM at 6C(4107-01)

2K EPROM
4K S2

Channel select
4 (+40)
octal.

| | |
|---|-----|
| • | S1a |
| • | S1b |
| • | S1c |
| • | S1d |

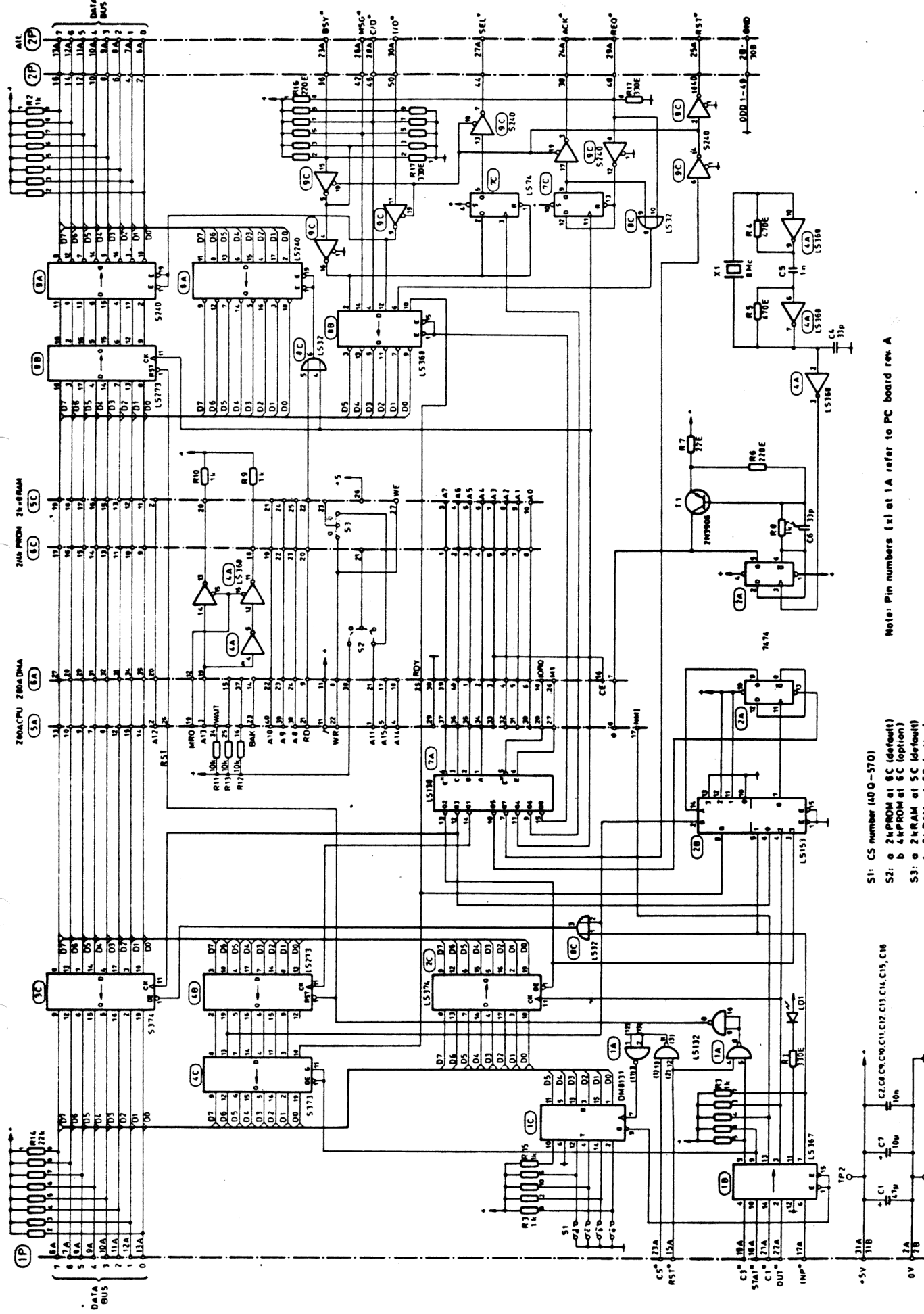


Position of
24-pin 2K
RAM in 5C.

Pos 5C Pos 6C
RAM EPROM

RAM 2K
S3 8K

S3a: 2K RAM at 5C(Default)
S3b: 8K RAM at 5C



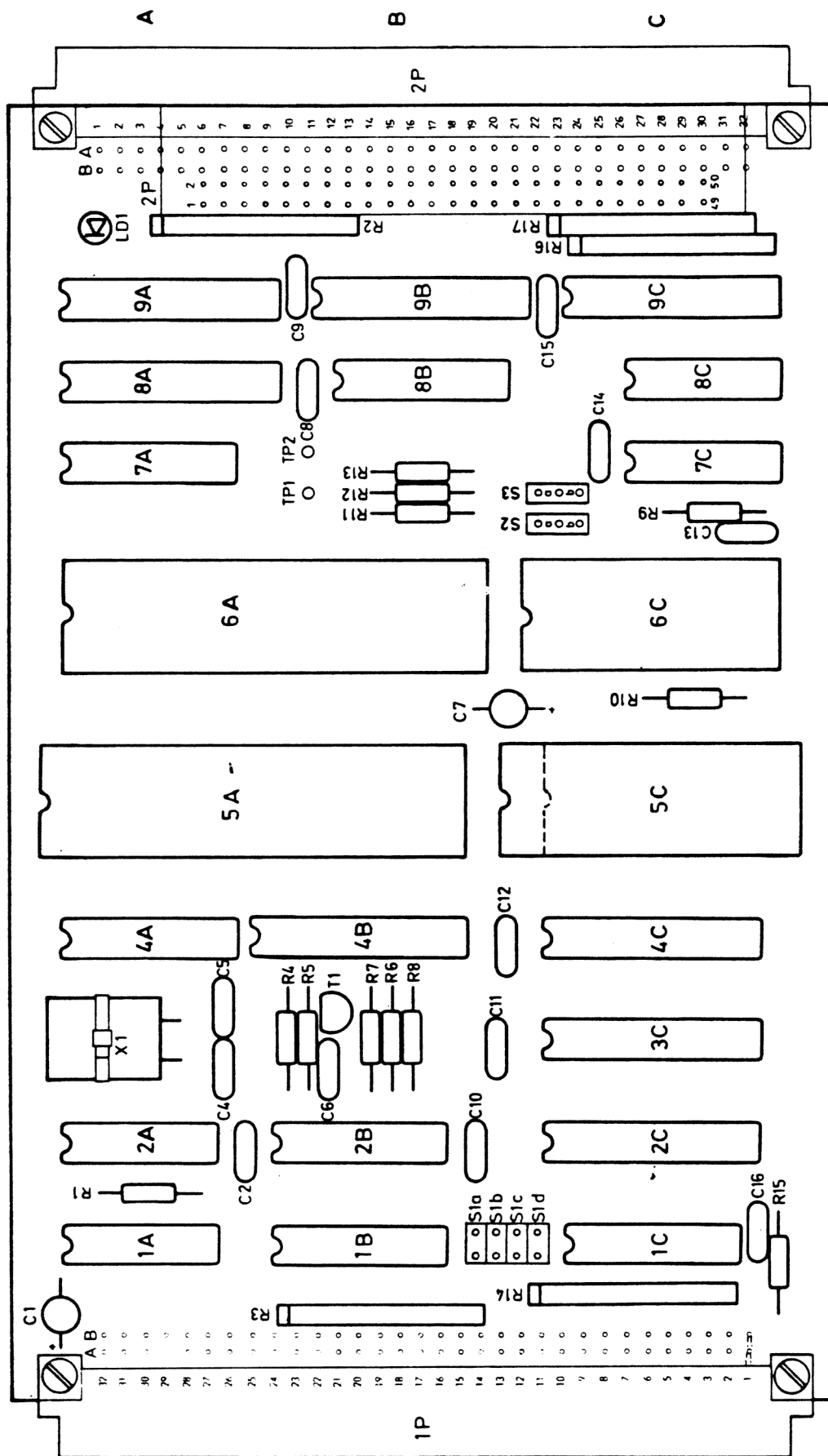
Note: Pin numbers (x1) at 1A refer to PC board rev. A

- S1: CS number (400-570)
- S2: a 2kPROM at 8C (default)
b 4kPROM at 8C (option)
- S3: a 2kRAM at 5C (default)
b 8kRAM at 5C (option)

C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16

| DATAINDUSTRIE AB | | | | | | | | | | | |
|------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| SWEDEN | | | | | | | | | | | |
| F | E | D | C | B | A | mm | mm | mm | mm | mm | mm |
| 840104 | 840102 | 830821 | 830115 | 820520 | 820311 | 820101 | 810101 | 810101 | 810101 | 810101 | 810101 |

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- S1: CS number (40 Q—57 Q)
 S2: a 2 k PROM at 6C (default)
 b 4 k PROM at 6C (option)
 S3: a 2 k RAM at 5C (default)
 b 8 k RAM at 5C (option)

| E | | D | | C | | B | | A | | REV | | MK | | DATAINDUSTRIER AB | | ABC800 XEBEC INTERFACE | | 82-4107-00 | |
|--------|--|--------|--|--------|--|--------|--|--------|--|-------|--|--------|--|-------------------|--|------------------------|--|------------|--|
| 840404 | | 830919 | | 830608 | | 820528 | | 820301 | | DATUM | | 820210 | | SWEDEN | | | | | |

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