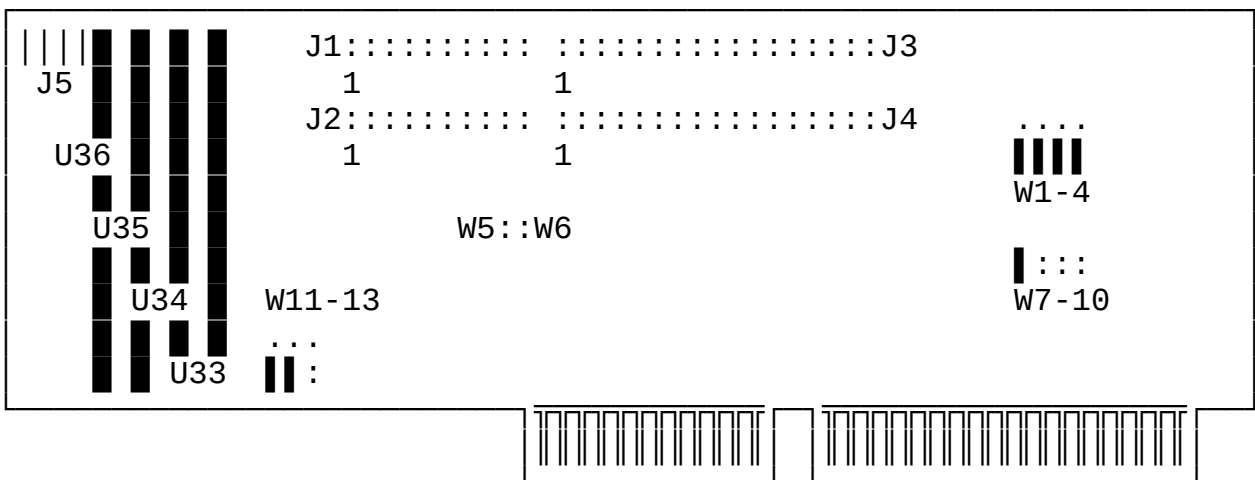


CompuAdd

HardCache/ESDI

Quick Setup

Default Jumper Settings



Jumper closed: **|**

Connectors

- J1 20pin data cable connector-drive1
- J2 20pin data cable connector-drive2
- J3 34pin control cable connector-hard drive
- J4 34pin data cable connector-floppy drive
- J5 4pin connector-drive active LED

Jumper Options

Floppy Drive Options

W1	PIN1&2 CLOSED PIN2&3 CLOSED	Floppy drive type is AT-type (DEFAULT) Floppy drive type is PS/2 type 1.44MB
W2	PIN1&2 CLOSED PIN2&3 CLOSED	Floppy Drive Interrupt is IRQ6 (DEFAULT) Floppy Drive Interrupt is IRQ10
W3	PIN1&2 CLOSED PIN2&3 CLOSED	Floppy Drive DMA Acknowledge is DACK2 (DEFAULT) Floppy Drive DMA Acknowledge is DACK3
W4	PIN1&2 CLOSED PIN2&3 CLOSED	Floppy Drive DMA Request is DREQ2 (DEFAULT) Floppy Drive DMA Request is DREQ3
W6	OPEN CLOSED	Floppy drive address 3F0-3F7h (DEFAULT) Floppy drive address 370-377h
W9	OPEN CLOSED	Floppy drive enabled (DEFAULT) Floppy drive disabled
W10	OPEN CLOSED	Floppy drive single spindle speed enabled (DEFAULT) Floppy drive dual spindle speed enabled

Hard Drive Options

W5	OPEN CLOSED	Hard drive address 1F0-1F7h (DEFAULT) Hard drive address 170-177h
W12	PIN1&2 CLOSED PIN2&3 CLOSED	Block Data Transfer mode enabled (DEFAULT) IRQ-Paced Data Transfer mode enabled

BIOS Options

W7	OPEN CLOSED	BIOS enabled (DEFAULT) BIOS disabled
W8	OPEN CLOSED	BIOS address C800-C9FFh (DEFAULT) BIOS address CA00-CBFFh

Cache Options

W11 PIN1&2 CLOSED 256KB SIMM's supported (DEFAULT)
PIN2&3 CLOSED 1MB SIMM's supported

Factory Option

W13 OPEN Factory configured - do not alter

Cache Memory SIMM Configuration

Use either 256KB or 1MB standard SIMM memory modules with 256KB*9 or 1MB*9 configuration. Jumper W11 accordingly.

256KB Cache

U33 256KB SIMM
U34&U35&U36 empty

512KB Cache

U33&U34 256KB SIMMs
U35&U36 empty

768KB Cache

U33&U34&U35 256KB SIMMs
U35&U36 empty

1 MB Cache

U33&U34 256KB SIMMs
U35&U36 256KB SIMMs

* or *

U33 1MB SIMM
U34&U35&U36 empty

2MB Cache

U33&U34	1MB SIMMs
U35&U36	empty

3MB Cache

U33&U34&U35	1MB SIMMs
U35&U36	empty

4 MB Cache

U33&U34	1MB SIMMs
U35&U36	1MB SIMMs

Drive Preparation and Setup for DOS

Set up the drive for hard sector mode, 36 sectors per track for 10MHz drives and 53 sectors per track for 15MHz drives.

Use CompuAdd's `fmt.exe` utility to initialize (low-level format) the drive from a bootable floppy drive within a DOS system.

Head and track skew values are assumed from `fmt.exe` by default. "You can derive the correct head-skew factor from the following information and formula:

$$\text{Head skew} = (\text{head-switch time/rotational period}) \times \text{SPT} + 2$$

In other words, the head-switching time of a drive is divided by the time required for a single rotation. The result is multiplied by the number of sectors per track, and 2 is added for controller overhead. The result should then be rounded up to the next whole integer (for example, $2.3 = 3$, $2.5 = 3$).

You can derive the correct cylinder-skew factor from the following information and formula:

$$\text{Cylinder skew} = (\text{track-to-track seek time/rotational period}) \times \text{SPT} + 4$$

In other words, the track-to-track seek time of a drive is divided by the time required for a single rotation. The result is multiplied by the number of sectors per track, and 4 is added for controller overhead. Round the result up to a whole integer (for example, $2.3 = 3$, $2.5 = 3$).

The following example uses typical figures for an ESDI drive and

controller. If the head-switching time is 15 us (microseconds), the track-to-track seek is 3 ms, the rotational period is 16.67 ms (3,600 RPM), and the drive has 53 physical sectors per track:

$$\begin{aligned}\text{Head skew} &= (0.015/16.67) \times 53 + 2 = 2 \text{ (rounded up)} \\ \text{Cylinder Skew} &= (3/16.67) \times 53 + 4 = 14 \text{ (rounded up)}\end{aligned}^1$$

Don't change the interleave factor default (1). Don't change the detected physical drive geometry (heads, cylinders, sectors per track).

Reboot. The HardCache/ESDI controller will automatically use 63-sector-translation mode to address the storage space. Partition the drive with DOS fdisk and make the partition bootable. Reboot. At the DOS prompt enter:

```
A>format c: /s
```

to format the drive for DOS usage and copy the DOS system files. Now the ESDI storage system is ready for use.

Use CompuAdd's HardCache Utility hcu.exe to fine tune the caching parameters

1 Scott Mueller: Micro House PC Hardware Library Volume I: Hard Drives , <http://alasir.com/books/hards/034-035.html>