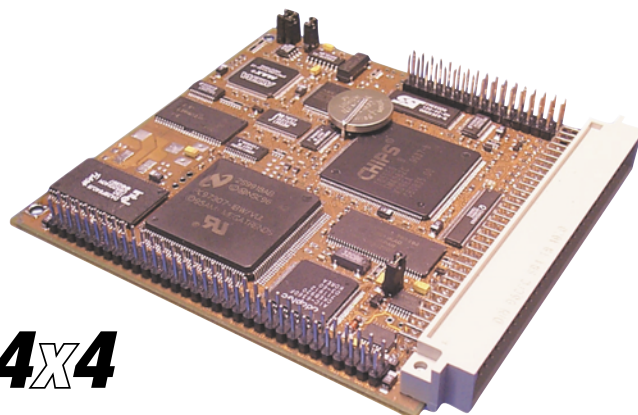




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# 4x4

### PC/II+vxe Features

- V40HL 20 MHz Processor
- 640 Kb EDO DRAM
- Super VGA & panel video w/2MB memory
- Integrated RTC with battery
- Up to 8MB of flash storage
- M-Systems Disk-On-Chip support
- 4"x4" form factor and ISA bus interface
- Watchdog & power monitors
- Up to three RS-232 serial ports
- Convenient Eurocard DIN connector

From manual IDN0035v8

### Specifications

**Board Form Factor & Type:**

3.937 x 3.937 inch (100.0 x 100.0 mm); FR4

**Basic Board Requires:**

Central Processing Unit

Main Memory 640 KB EDO DRAM

Minimum Connectors – 96-pin DIN connector (J901)

**Architecture:**

PC / XT

**Central Processing Unit:**

x86-Compatible Processor (V40HL™/188)

V40HL™:

- 20 MHz core speed (100 ns execution time)
- Zero wait-state 20 MHz local bus for on-board memory & I/O
- 5V high-speed, low power
- 16-/8-bit architecture/data bus
- Memory Refresh controller
- Timer/counter controller
- Serial controller
- Interrupt controller
- DMA controller

**DMA:**

- (3) Channels
- 1 MB (20-bit) addressable
- 16-bit transfer counters

**Interrupts:**

- (8) Interrupt levels
- (7) external interrupt sources, (1) internal
- Edge/level triggered (TCU is edge only)
- All inputs individually maskable
- All inputs priority programmable
- Polling capable

**Timer/Counters:**

- (3) 16-bit timers/counters
- (6) programmable counter modes
- binary/BCD
- multiple latch
- clock source internal or external

**PC Speaker Output:**

Yes, available on Peripheral I/O connector

**LEDs:**

(1) System Status

**Memory & Address Bus:**

8-bit data; 16-bit address

**Power Monitoring:**

Dual 5% monitor – +5V and +3.3V rails  
 Reset hold time – 130 ms minimum, 200 ms typical  
 Transient voltage immunity

**Manual Reset:**

Available on 96-pin DIN I/O Connector  
 Debounced, generates minimum of 130ms reset on Low to High  
 Initiated by pulling Manual Reset signal line Low, then High

**Memory:**

DRAM EDO (soldered) memory  
 DRAM – EDO, 60 ns typical

**Memory Options:**

640 KB Main memory  
 EDO DRAM 60ns typical

**Keyboard & Mouse:**

PS/2-style or XT-style

PS/2-style:

- Keyboard & optional Mouse supported
- Keyboard provided on 96-pin Peripheral I/O connector
- Mouse provided on 2-pin on-board header
- 8042A compatible controller provided by PC97307
- PS/2 serial line discipline supported
- Open-collector bi-directional serial lines (16 mA drive)
- 8 MHz, 12 MHz or 16 MHz serial data rates

XT-style:

- Keyboard supported (there is no mouse for an XT)
- Compatibility manufacturing option
- Keyboard provided on 96-pin Peripheral I/O connector
- XT compatible KBC provided by Altera CPLD

**System LED:**

On-board system LED confirms Bios & Hardware status

**Printer/Parallel Port:**

(1) Full SPP Parallel Port

**Serial/RS232 Ports:**

(1) or (2) 16550-compatible Serial Ports

16- or 32-byte FIFOs

Operation at all standard extended baud rates (to 115.2 Kbps),

and at extended rates to 230.4 Kbps

Full EIA-RS232E and CCITT V.28 Transceivers included

Rated to 230 Kbps

Output swing  $\pm 9V$  with all Transmitter Outputs loaded with 3K ohms to Ground

**Serial Two-wire RS-232:**

(1) BIOS-controlled RS-232 two-wire (Rxd & Txd) Serial Port

Full EIA-RS232E and CCITT V.28 Driver & Receiver included

Output swing  $\pm 9V$  with all Transmitter Outputs loaded with 3K ohms to Ground

**ISA Bus:**

2x32 8-Bit PC ISA bus Interface Header

Supports up to 4 external slots

**SCSI Bus:**

SCSI Controller, Bus Interface, and Optional Active Terminator

Optional Dallas DS21S07 Active Terminators

Hardware enable/disable jumper option

**Adaptec AIC6360 Option:**

(7) SCSI-2 devices

SCSI BIOS included

ASPI driver supported

**Video CRT & Flat Panel:**

Chips and Technologies HiQ 65550 GUI Accelerator

Complete Analog CRT Video Interface

Complete 24-Bit Flat Panel Interface provided by on-board 36-pin Header

Compatible 8-Bit or 16-Bit Panel Interface also provided on 96-Pin DIN Connector

Monochrome (64 gray scale) or color

Hi-Res Passive STN, Active Matrix TFT/MIM LCD, EL

64-bit Graphics Accelerator engine (BitBLT), H/W cursor

VGA register set compatibility

Supports 5V and 3.3V panels from popular manufacturers such as

Sharp, Optrex, Toshiba, Hitachi, Fujitsu, Samsung, NEC, Sanyo etc.

2 MB Video EDO DRAM, 512Kx32 local bus interface 60 ns typical

Simultaneous CRT / Flat Panel operation supported using on-board 36-pin interface header for panels

Chips and Technologies drivers included

**Connectors:**

Power Connectors –

J901: +5V supplied to Board through 96-pin DIN I/O Connector

J003: +3.3V optionally supplied to Board through +3.3V Power Connector

J901 : Peripheral I/O Interface Connector –

(1) 3x33 (.100 inch pitch) Right-Angle Connector

Support top mounting (bottom by request)

Support standard headers on request

(including board stacking headers)

J902 : ISA-bus Connector –

(1) 2x32 and pin and socket header

stack-through and non stack-through

board stacking is customer specified

J002 : Full Video Header –

(1) 2x18 Header

Support full 24-bit panels

Support Simultaneous Video CRT and Panel Modes

J003: +3.3V Power Connector (optional)

All connectors except for the Peripheral I/O connector (J901) are optional

**Flash Array:**

Soldered Flash EEPROM – 2, 4 or 8 MB

**Flash Disk:**

Socket for user-supplied M-Systems Disk-on-Chip solid-state disk

Support for MD2000 modules (2 to 144MB capacity)

Coexistence support for both Flash Array and Flash Disk

**Floppy Disk:**

Integrated Floppy Disk Controller

(2) floppy disk drives supported

5.25", 3.5" media

360 KB, 1.2 MB, 720 KB, 1.44 MB, 2.88 MB

MFM (double density) or FM (single density)

IBM MFM, ISO MFM, & Toshiba perpendicular recording formats

1 Mb/sec, 500 Kb/sec, 300 Kb/sec and 250 Kb/sec transfer rates

PC8477, uDP8473, uPD765A and N82077 software compatible

**Watchdog:**

Dallas DS1706 Watchdog Timer/Monitor

Software enable/disable/strobe is supported

Minimum strobe rate while enabled – 1 strobe/second

Enable/Disable

Defaults at power-on time to software-disabled state

Hardware enable/disable jumper option

**Real-Time Clock, Alarm:**

National PC97307 – Integrated Y2K Real-Time Clock Controller

Multi-century calendar

On-board battery backup of RTC RAM data

2uA maximum draw during power-down

Alarm & three (3) Timer Interrupts – 122 uSec to 500 mSec

3 bank RAM memory

114 byte BIOS configuration RAM

128 byte RTC configuration RAM

Binary or BCD time formats

12- or 24-hour time formats

Daylight savings time & Leap Year support

**Peripheral I/O Signals:**

Signal Pins – 96-Pin DIN Interface Connector

Video CRT & Panel – 17

PC Speaker – 1

Parallel (LPT1) I/O – 17

SCSI – 18

Serial COM1 (RS-232E) – 8

Serial COM2 (RS-232E) – 8

Serial COM4 (RS-232) – 2

Keyboard – 2

Floppy – 15

Reset Switch – 1

Power & Ground

Signal Pins – Other I/O Headers

Video Panel – 32

Mouse Header – 2

**Supply Voltage:**

Single supply at +5V 5%, or dual supplies at +5V 5% and +3.3V 5%

**Supply Power Rating:**

1W-2.5W estimated (depending upon options, excluding external peripheral requirements)

**Supply Regulation:**

+5V and +3.3V Supplies require regulation to within 5%

**Supply Rise/Fall Time:**

+5V Supply maximum rise time (+3V to +5V) required within 100 ms

+5V Supply maximum fall rate not to exceed 1 V/ms.

**Supply Regulation:**

On-board regulation is provided for the on-board +3.3V supply, or optionally +3.3V supplied externally to +3.3V power connector

On-board power monitor for both 5V rail and on-board +3.3V supplies

**Operating & Application Software:**

DOS & compatible O/S; x86 compatible

**Bios Software:**

128 KB or 256 KB Flash EEPROM for Bios

Bios write protection (hardware)

Chips & Technologies 65550 VGA Driver BIOS included

PC/XT compatible BIOS and Architecture