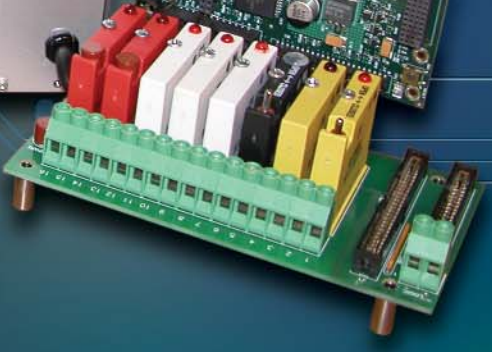


FALL 2005

TRANSPORTATION COTS COMMUNICATIONS SECURITY INDUSTRIAL

EMBEDDED COMPUTER SYSTEMS



ONE-STOP
HARDWARE

ONE-STOP
SOFTWARE

ONE-STOP
SUPPORT

ONE-STOP
WARRANTY

ONE-STOP
SERVICE

ONE-STOP
PACKAGING

warranty

OCTAGON
SYSTEMS

Octagon products

SERVE A WIDE RANGE OF APPLICATIONS

One of the exciting innovations in this catalog is our XBLOK™ expansion modules.



This line provides convenient and low-cost ways to expand a PC/104 and PC/104-Plus systems. Fifty-six percent smaller than a PC/104 card, two XBLOK modules can occupy half the vertical space as two standard PC/104 cards. The XBLOKs have the same rugged specifications as our other products and some sell for well under \$100. See page 5 for details.

Octagon continues to expand our EPIC™ format series. This new industry standard, now administered by the PC/104 Consortium, is the first format to offer a “bridge to the future”—a platform designed to defy obsolescence. Our current products range from 133 MHz to 1.0 GHz, each with a wealth of I/O. Octagon EPIC cards use vertical connectors, minimizing its footprint and eliminating interference with other components in small enclosures.

Another innovation shown on page 6 is our conduction cooling kit for the XE-900. This kit permits 1.0 GHz operation without a cooling fan—typically the weakest component in many applications. Fans often have the lowest MTBF of any system component, do not perform well at temperature extremes, and have limited effectiveness at higher altitudes.

Octagon continues to evolve to bring new technologies, one-stop procurement, high value and continued reliability to you, our customers.

*John McKown
President and CEO
Octagon Systems Corporation*



Good business has always been about people-to-people relationships, not balance sheets.

Contrary to current thinking, we keep manufacturing in-house. It gives us complete control over quality, delivery, stability and process integrity—something we can't get by going offshore.



Quality can not be tested into a product. If integrity was not in the mind of the designer, testing only reveals this fact.

The customer, not a quality system, is the ultimate judge of a company. The latter is just a method to serve the needs of the former. We listen to our customers.





One-stop convenience

Octagon has long been a supplier of hardware and software for the embedded market. With the third-party I/O, enclosure and power supply additions, Octagon can supply your needs from one source.

- ▶ Talk to **one** sales engineer to help configure your system.
- ▶ Cut **one** purchase order to save time and costs.
- ▶ Contact **one** technical support engineer to configure your system the way you need it.

ONE-STOP
HARDWARE
ONE-STOP
SOFTWARE
ONE-STOP
SUPPORT
ONE-STOP
WARRANTY
ONE-STOP
SERVICE
ONE-STOP
PERIOD!

Octagon Certified Partner program



Octagon's partnerships with leading I/O manufacturers provide the widest possible range of quality, embedded products. Unlike reseller programs, Octagon certifies the operation of these products with Octagon CPU cards.

In addition, Octagon provides the first line of support so that application issues can be resolved with a single contact. All Certified Partner products are designed, manufactured and validated in the U.S.A.

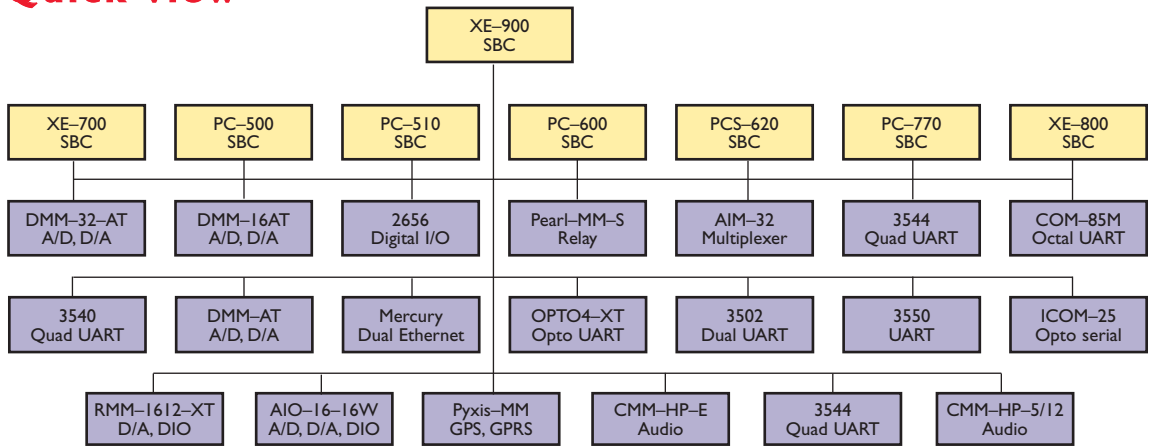
Certified Partner products are warranted with the same three-year guarantee as Octagon products.



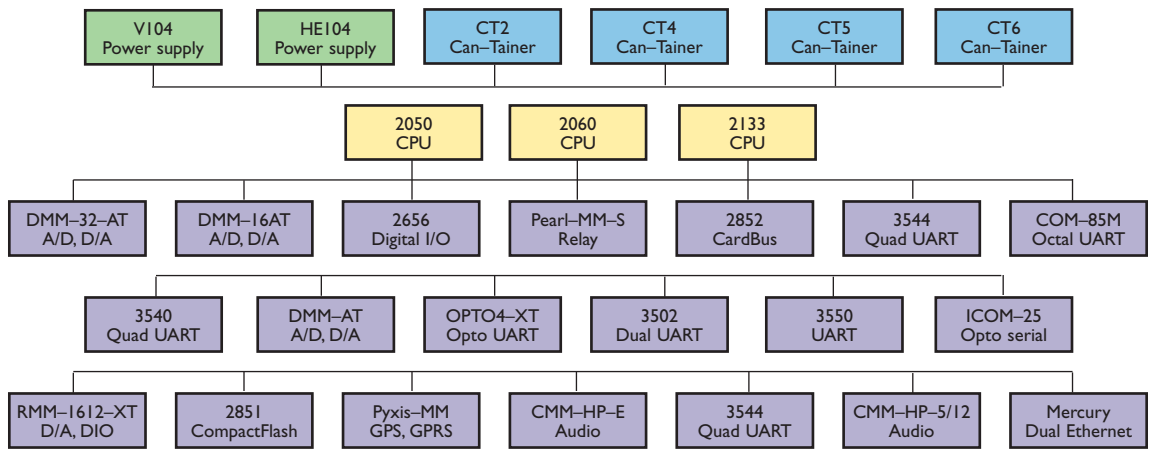
Octagon product lines

Quick view

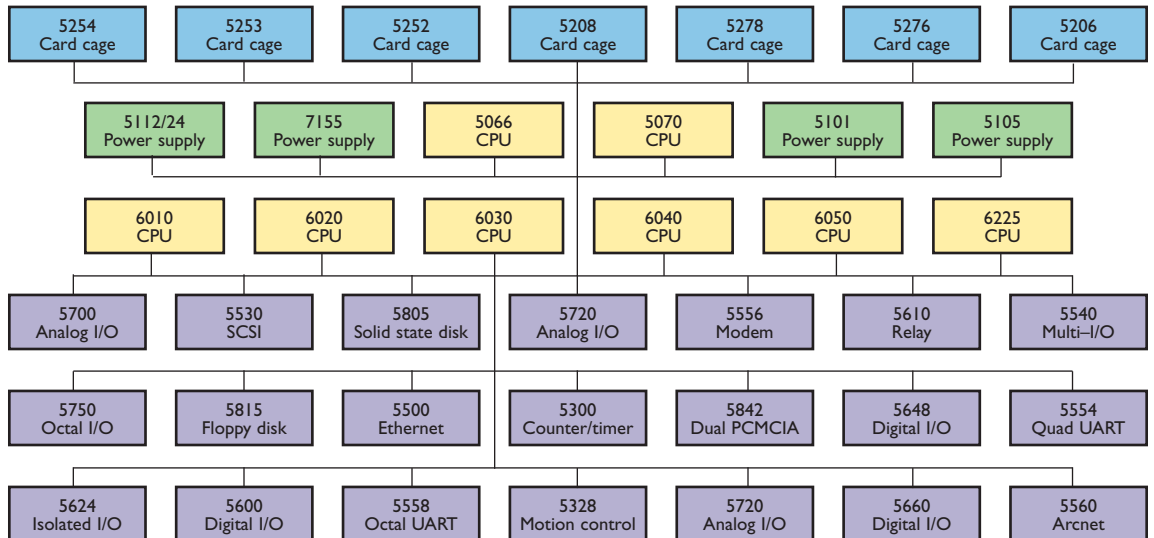
EBX and EPIC SBCs with PC/104 expansion modules



PC/104 CPU, expansion modules, power supplies & enclosures



Micro PC™, expansion cards, power supplies & card cages



XBLOK™

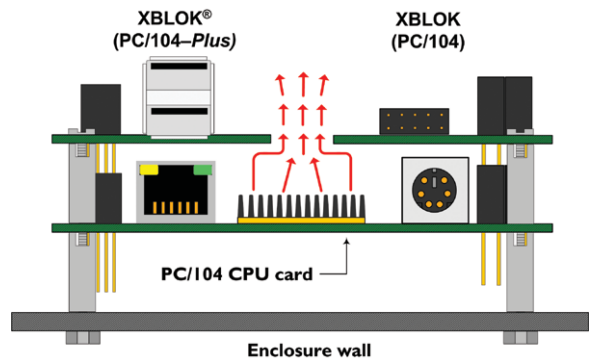
NEW low-cost expansion for PC/104

XBLOKs offer the best compromise in cost and performance for expansion on the PC/104 and PC/104-Plus buses. Only 44 percent the size of the standard PC/104 card, the XBLOKs allow two functional additions while only increasing the PC/104 stack height by one level. This reduces not only the system size but can reduce noise susceptibility. As shown in the figure below, the gap between the XBLOKs can be crucial in enhancing the cooling of higher performance CPU cards. Both types use two of the standard PC/104 supports and either 104 or 120 pins of the connector for stiffening. As a result of independent testing, the XBLOKs have the same 5g vibration specification as other Octagon PC/104 cards. Some movement may occur during severe shock, but operation and electrical integrity are uncompromised. Multiple OS support available.



X-DIO-48 bit-programmable digital I/O

- 48 digital I/O, 5V compatible
- Source and sink 16 mA per output
- Direct connection to opto-module racks
- Programmable base address
- Internal 10K pull-down resistors
- -40° C to 85° C operation



X-COM-2 dual UART

- Up to 230.4 kBaud data rate
- Supports RS-232, RS-422, RS-485
- Inputs protected to 15 kV
- RS-485 fault protected to ±60V supports 128 nodes "fail-safe" receivers
- Slow rate controlled outputs for low EMR
- -40° C to 85° C operation



X-LAN-1 Ethernet LAN

- 10/100 Base-T, Intel 82551ER
- Supports IEEE 802.3 Ethernet standard
- 3K transmit and receive buffers
- Auto-negotiation for speed, duplex and flow control
- Link and activity LEDs
- Fully plug-n-play compatible
- High performance, PCI bus interface
- -40° C to 85° C operation



X-USB-4 quad USB 2.0

- Speeds up to 480 mbps
- Mix and match USB 1.1 and 2.0
- Two root hubs with four ports
- Current limited ports can supply 500 mA to external devices
- Compliant with OHCI USB Rev 1.0a
- Compliant w/EHCI for USB Rev 1.0
- LED activity indicators for each port
- -40° C to 85° C operation



X-SRAM-2 MB

- 2 MB of high speed, static RAM
- Read and write at full bus speed
- Far faster than flash, etc.
- Rechargeable lithium ion battery
- Pointers to memory saved in CPU resets or loses power
- I/O mapped with programmable base address
- Requires only 16 I/O addresses
- -40° C to 85° C operation

XE-900

1.0 GHz CPU "beats the heat"

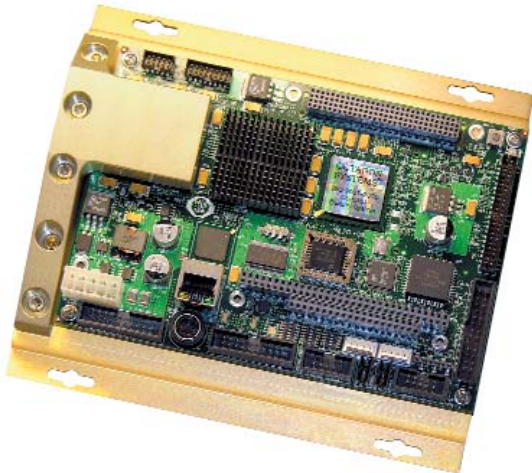


OCTAGON **HILITES**

- 1.0 GHz & 733 MHz—fastest EPIC format card available
- Accepts CompactFlash drives up to 8 GB
- Bootable from CompactFlash
- Compatible with Windows® XP Embedded & CE.net, Linux, QNX®, VxWorks® and most popular software

FEATURES

- 1.0 GHz, low power Via Eden processor
- Via VT8606 north bridge, VT82C686B south bridge
- General Software BIOS with fast boot and industrial extensions
- SO-DIMM socket for up to 256 MB SDRAM
- ATA-4 drive interface with support for three drives
- CompactFlash, accepts Type I or II devices, bootable
- LVDS and analog for flat panels and CRT
- 24 lines, bit-programmable digital I/O
- Six COM ports
 - COM1-4 are RS-232
 - COM5 RS-232/422/485
 - COM6 RS-422/485/TTL
- Two USB ports
- Ethernet 10/100 Base-T
- Watchdog timer, programmable
- PS/2 keyboard and mouse
- CPU supervisor
- PC/104 and PC/104-Plus expansion connectors
- AT battery port for real time clock
- Size: 4.5" x 6.5" x 0.8" (115 x 165 x 20 mm), EPIC™ form factor
- 40g shock, 5g vibration
- Small footprint, all connectors vertical
- Power: 5V ±0.25V @ TBD
- -40° to +70/80° C operating range 1.0 GHz/733 MHz, conductive cooling



Conduction cooling kit eliminates fan even at 1 GHz

XE-800

Ethernet and USB engine in EPIC™ format



OCTAGON HILITES

- Intensive networking capability
- 10/100 Base-T Ethernet ports
- Four USB 2.0 ports communicate with the latest devices
- Accepts CompactFlash drives up to 8 GB
- Bootable from CompactFlash
- Compatible with Windows XP Embedded & CE.net, Linux, QNX, VxWorks and most popular software

FEATURES

- New industry standard EPIC format
- AMD Geode GX1 CPU with CS5530A companion chip; 300 MHz
- Phoenix BIOS with fast boot and industrial extensions
- SO-DIMM socket for up to 256 MB SDRAM
- EIDE interface supports two devices (CD-ROM, hard drive, EIDE flash drives, etc).
- CompactFlash, accepts Type I or Type II devices, bootable
- On-board video controller for CRT or TFT flat panels
- 48 lines, dedicated digital I/O, 16 mA drive
- Two eight-wire serial ports
- Six USB ports; four USB 2.0 and two USB 1.1
- PC/104 16-bit ISA Bus and PC/104-Plus expansion buses
- Ethernet 10/100 Base-T, supporting IEEE 802.3 standard
- PS/2 keyboard and mouse
- AT battery port for real time clock
- Size: 4.5" x 6.5" x 0.8", (115 x 165 x 20 mm) EPIC form factor
- Small footprint, all connectors vertical
- Power: 5V ±0.25V @ 1.5 Amps typical (64 MB SDRAM)
- -40° to +80° C operating range
- OS Embedder kits available for Linux 2.6 and QNX

XE-700

Low power SBC with full compliment of I/O

OCTAGON HILITES

- Low cost per I/O point
- Can operate a reduced clock for lower power operation
- Bootable from CompactFlash
- Compatible with Linux, QNX, DOS, Windows CE.net



FEATURES

- New industry standard EPIC format
- STPC Atlas, 32-bit 5x86 class CPU
- Phoenix BIOS
- 24 lines of bit-programmable digital I/O, 16 mA
- Four serial ports
- Two USB ports
- CompactFlash support to 8 GB
- On-board video controller for CRT and TFT flat panels
- 10/100 Base-T Ethernet controller
- Watchdog timer, programmable
- PS/2 keyboard and mouse
- CPU supervisor
- PC/104 expansion connector
- AT battery port for real time clock
- Size: 4.5" x 6.5" x 0.8", (115 x 165 x 20 mm) EPIC™ form factor
- 40g shock, 5g vibration
- Small footprint, all connectors vertical
- Power: 5V ±0.25V @ 1.6A max.
- -40° to +80/85° C operating range 133/100 MHz

Features	XE-900	XE-800	XE-700
CPU	Via Eden	AMD Geode GXI	STPC
Clock speed	1.0 GHz	300 MHz	133 MHz
BIOS	General Software	Phoenix	Phoneix
DOS 7.1 include.	no	yes	no
DRAM support	to 256 MB	to 256 MB	32/64 MB
Flash	512K	256K	2-4 MB
Compact/Flash	Type I or II	Type I or II	Type I or II
COM 1	RS-232	RS-232/422/485	RS-232
COM 2	RS-232	RS-232/422/485	RS-232/422/485
COM 3	RS-232	NA	RS-422/485
COM 4	RS-232	NA	RS-232
COM 5	RS-232/422/485	NA	NA
COM 6	RS-422/485/TTL	NA	NA
LPT1	no	0	1
EIDE	2	2	1
Keyboard/mouse	PS2	PS2	PS2
USB	2	6	2
CRT	1600 x 1200	1280 x 1024	1280 x 1024
Flat panel	LVDS	yes	yes
Digital I/O	24-bit prog.	48-bit prog.	24-bit prog.
Watchdog	1, 10, 60 sec.	1.6 sec. nom.	1.6 sec. nom.
Ethernet	10/100 Base-T	Dual 10/100 Base-T	10/100 Base-T
Expansion	PC/104 & Plus	PC/104 & Plus	PC/104
Power	3.6 A operating	1.6A max.	1.6A max
Temp. range	-40° to 70/85° C	-40° to 80° C	-40° to 80/85° C
Shock/vibration	40/5g	40/5g	40/5g
Size	4.5" x 6.5" x 0.8"	4.5" x 6.5" x 0.8"	4.5" x 6.5" x 0.8"

Single board computers

This family of EBX single board computers are heavily populated with various types and amounts of I/O. They are economical choices when C++, DOS or Linux are embedded on the cards.



PC-770 CPU, 400-800 MHz, CRT, audio, dual Ethernet

High performance or low-power economy CPU. Conduction cooling kit eliminates fan. Bootable from CompactFlash.



PCS-620 CPU, 300 MHz P II with wireless support

CardBus connector accepts wireless and a host of other I/O functions. Dual Ethernet and 48 DIO lines are only a part of the functionality.



PC-600 CPU, 300 MHz P II dual Ethernet & TFT

Ample I/O can be expanded through the PC/104 and PC/104-Plus connectors. Up to 512K SDRAM and 8 GB of CompactFlash.



PC-510 CPU, 5x86 GPS and 6 serial ports

The PC-510 is rich in I/O and allows direct mounting of the Trimble Jupiter GPS module. DOS 7.1 included.



PC-500 CPU, 5x86 48 DIO and Ethernet

Includes DOS 7.1 in flash. Six serial ports, Ethernet, video & DIO are some of available features.



PC-680 CPU, low power P II "no compromise" -40° to 85° C

With a CPU case temperature rating of 100° C, the PC-680 can be operated at an ambient temperature of 85° C without derating.

Features	PC-770	PC-680	PC-600	PCS-620	PC-510	PC-500
CPU	Pentium III or Celeron	Pentium II	Geode GX-I	Geode GX-I	5x86	5x86
Clock speed	800 MHz or 400 MHz	166/266 MHz	300 MHz	300 MHz	133 MHz	133 MHz
BIOS	Phoenix	Phoenix	Phoenix, fast boot	Phoenix, fast boot	Phoenix	Phoenix
DOS 7.1 include.	no	yes	no	yes	yes	
DRAM support	to 512 MB	to 128 MB	to 512 MB	to 512 MB	to 48 MB	to 48 MB
Flash	512 KB	4 MB	512K	512K	2 MB	1 MB
DiskOnChip	no	yes	no	no	yes	no
Compact/Flash	yes	no	yes	yes	no	no
BB SRAM	no	512K	NA	NA	to 512K	to 512K
COM 1/COM2	RS-232	RS-232	RS-232	RS-232	RS-232	RS-232
COM 3/COM4	RS-232/422/485	RS-232/422/485	RS-232/422/485	RS-232/422/485/TTL	RS-232	RS-232
COM 5	NA	RS-232	NA	NA	RS-232/TTL/GPS	RS-232/TTL/GPS
COM 6	NA	RS-232	NA	NA	RS-232/485	RS-232/485
LPT1	1-1284/ECP/EPP	1	1-1284/ECP/EPP	1-1284/ECP/EPP	1	1
EIDE	2-EIDE	24-EIDE	2-EIDE & CF	2-EIDE & CF	2	2
PCMCIA	no	no	no	CardBus	no	no
Floppy	2	2	1	2	2	2
USB	4	2	2	2	0	0
Audio	AC-97	no	AC-97	AC-97	no	no
CRT	1600 x 1200	1280 x 1024	1280 x 1024	1280 x 1024	1280 x 1024	1280 x 1024
Flat panel	18/24-bit TFT, DVO	32-bit, 2 MBVM	18-bit, 4 MBVM	18-bit, 4 MBVM	18-bit, 2 MBVM	18-bit, 2 MBVM
Digital I/O	24-bit prog.	32-bit prog.	48-bit prog.	24-bit prog.	48-bit prog.	24-bit prog.
Watchdog	4-64 sec.	0.5-64 sec.	10-60 sec.	10-60 sec.	1.6 sec. nom.	1.6 sec. nom.
Ethernet	2-10/100 Base-T	10/100 BaseT	2-10/100 Base-T	2-10/100 Base-T	no	yes
Expansion	PC/104, PC/104-Plus	PC/104, PC/104-Plus	PC/104, PC/104-Plus	PC/104, PC/104-Plus	PC/104	PC/104
Temp. sensor	no	yes	yes	yes	no	no
Power	4A PIII, 3A Celeron	1.6/1.7A max.	1.8A max.	1.5A max.	1.6A max.	1.6A max.
Temp. range	-40° to 70° C	-40° to 85° C	-40° to 70/85° C	-40° to 70/85° C	-40° to 70° C	-40° to 70° C
Shock/vibration	40/5g	40/5g	40/5g	40/5g	40/5g	40/5g

OS Embedder™ kits

OS Embedder kits greatly simplify implementation of operating systems on a wide variety of Octagon's ruggedized, single board computers. Not only is the time to market reduced, but our kits help you produce more robust software. Linux, Windows CE.net, Windows XP Embedded, QNX, and DOS are available on EBX, EPIC and PC/I04 form factors with CPU speeds from 133 MHz to 1.0 GHz.

Octagon develops and tests all drivers for full functionality on the hardware platforms supported. OS Embedder kits include cables, memory, custom drivers, application examples and the target hardware platform. Octagon has free, unlimited technical support on both hardware and software.



Linux OS Embedder kits include an optimized 2.4 or 2.6 Linux kernel pre-installed on a CompactFlash. Users get all the benefits of the Linux performance, open source environment, with no license fees.



Windows OS Embedder kits feature either Windows CE.net or XP Embedded. CE.net kits include an evaluation version of development software from Microsoft for a host system, and instructions for building a target image and methods for transferring that image to the CompactFlash. XP Embedded evaluation software requires downloading the software from Microsoft's website. Both Windows operating systems give the user connectivity, scalability, and the familiar look and feel of Windows.



QNX OS Embedder kits include a pre-programmed evaluation image on a CompactFlash, and a 30-day evaluation version of QNX for a host system. QNX Momentics® offers the deterministic stability of hard real time.



DOS OS Embedder kits include a ROM-DOS™ license from Datalight, a pre-programmed CompactFlash. All industrial hardware features are fully supported with INT 17 BIOS extension calls.

Linux

- Free run times
- GPL licenses
- Open source code
- Broad support & knowledge base
- High reliability & performance
- Octagon-optimized embedded kernel
- Octagon product driver set

Windows CE.net

- Windows API—familiar & popular development environment
- Cost effective
- Windows "look & feel" environment
- Reliable, scalable OS environment
- Octagon product driver set

Windows XP Embedded

- Windows API—familiar & popular development environment
- Windows "look & feel" environment
- Latest Windows technology in modular format
- Scalable OS environment
- Wireless support
- Optimum graphic & network capabilities
- Octagon product driver set

QNX

- Hard, real time performance
- Deterministic
- High reliability & performance
- 20 years embedded experience
- User friendly development
- Octagon product driver set

DOS

- Long track record
- Very cost effective
- Stable & reliable
- Minimum learning curve
- Small memory footprint
- No license necessary on Octagon CPU cards

OS Embedder™ kits



The OS Embedder kits are the shortest path to successful implementation of an operating system on an Octagon embedded computer.

- Pick the SBC that fits your needs
- Select the OS that is required in your application

Octagon has done the rest. The combination of the OS Embedder kits and an Octagon SBC results in high performance, total solutions.

Typical Linux kit includes:

- Target CPU card
- Preloaded OS image on 256 MB industrial CompactFlash
- 256 MB SO-DIMM module
- Interface cables
- Hard copy of manual
- Mouse
- CPU OS Embedder bootable CD
 - Optimized version of the OS
 - Full driver support for on-board hardware
 - X-Windows support
 - Example applications and source code
 - Extra documentation

FEATURES

- Kernel 2.6.4: proven background
- GPL license-compliant, complete kernel and driver source code
- No run time license fees
- GNU C Library 2.2.4: ready to generate your application code
- Optional minimal X-Windows 4.4 for graphics capabilities
- Journalling Extended 3 File system (EXT3): offers high reliability and recovery from power interruptions
- Kernel modules for third-party expansion hardware: wireless communications capabilities
- Octagon custom drivers supplied as modules precompiled for 2.6.4 kernel
- Standard Linux modules & drivers
- Standard Linux drivers compiled in 2.6.4 kernel

OS	2050	2060	5070	PC-600	PCS-620	PC-680	PC-770	XE-800	XE-900
Linux	yes	yes	yes	yes	yes	yes	yes	yes	yes
QNX	yes	yes	yes	yes	yes	—	—	yes	yes
XP Embedded	—	—	—	—	—	—	—	—	yes
ROM-DOS	yes	yes	yes	yes	yes	—	—	—	yes
CE.net	—	yes	—	yes	yes	—	—	yes	yes

PC/104 CPU modules

The PC/104 architecture is one of the most widely supported embedded architectures. Supporting the 8- and 16-bit ISA Buses, and the 32-bit PCI Bus, it offers a wide range of I/O possibilities. The stacking nature is self-supporting and the most volumetric efficient of commonly available architectures. Octagon offers more than 15 I/O modules, supporting most applications.



2080: low power, low cost CPU

The 2080 is an ideal solution for Windows XP Embedded applications. With 8 GB of flash capacity, 256 MB DRAM via CompactFlash, Ethernet and other I/O, the 2080 is an economical, full-featured choice.

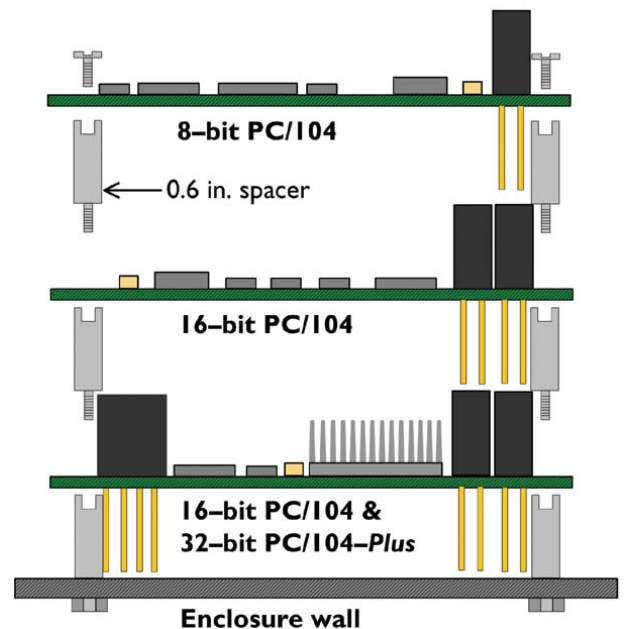
2133: low power, wide temp.

The 2133 is a replacement module with pin-for-pin compatibility with other cards on the market. It operates in "headless" systems. A serial port can be used for a console. Printer port lines can be used as 17 digital I/O.

2060: Pentium II performance

This 300 MHz module is capable of handling more complex tasks without a significant increase in power over the 2133. Drives CRTs and flat panels. 256 MB of DRAM capability will handle very large programs.

Features	2080	2060	2133
CPU	Pentium III	Geode GX-1	5x86
Clock speed	400 MHz	233/300 MHz	133 MHz
DOS 7.1 incl.	no	no	no
CompactFlash	yes	yes	no
DiskOnChip	no	no	yes
DRAM	to 256 MB	to 256 MB	to 64 MB
SRAM	0K	0K	to 512K
COM ports	2-RS-232/422/485	2-RS-232/422/485/	2-RS-232
USB	2	2	no
LPT1/ Floppy	1/1	1/1	1/1
EIDE	2	2	no
CRT	1600 x 1200	1280 x 1024	no
Flat panel	24-bit TFT	18-bit, 4 MB VM	no
Temp. sensor	yes	no	no
Digital I/O	17 (LPT1)	24+17 (LPT1)	17 (LPT1)
Watchdog	1-255 sec.	0.2-128 sec.	1.6 sec. nom.
Ethernet	10/100 Base-T	no	no
Power	1.5A typ.	1.1A/233 MHz	1.0A max.
Temp. range	-40° to 85° C	-40° to 85/80° C	-40° to 85° C
Shock/vibration	40/5g	40/5g	40/5g



PC/104

Analog I/O and digital I/O expansion modules

DMM-32-AT: Autocalibrating, stable 16-bit A/D, D/A & DIO

The 16-bit resolution and auto-cal provide an unusually stable platform for critical measurements. Solid state potentiometers for zero and span eliminate shifts due to vibration. Settings remain constant over the temperature range. This card has 32 SE or 16 DIFF inputs. Programmable ranging, 512 sample FIFO, 4 analog out, 24 DIO, etc., making it the best performing card in its class. Drivers included. -40° to 85° C.



DMM-16-AT: 16-bit A/D, D/A

Like the DMM-32-AT, this card has autocalibration for A/D and D/A, 100 kHz sampling rate and FIFO. It has seven input ranges from 1.25-10V including bipolar with a programmable gain amplifier. It has 16 SE or 8 DIFF inputs. Drivers included. -40° to 85° C.



DMM-AT: 12-bit A/D, D/A, DIO

The 16 channels can be configured to 8 differential. Five bipolar ranges from ±0.625V to ±10V, 10¹³ ohms input impedance, 100K samples/sec., 512 byte FIFO, eight lines of DIO and two DAC outputs with ±5 mA of drive round out the features of this versatile module. Drivers included. -40° to



RMM-1612-XT: 16-chan D/A, DIO

This card has 16 channels of analog output with 12-bits of resolution. Unipolar and bipolar ranges of 2.5, 5, and 10V in groups of eight. Outputs can source 5 mA. All DACs may be updated simultaneously. There are also 24 lines of digital I/O. Only 5V required. Drivers included. -40° to 85° C.



Pearl-MM-S: 16 relay card

The card has 16, form "C" relays, screw terminals for 16-28 AWG wire, fast 4 mS operate & release times, 0.5A or 60 VA, isolation is 500V channel to channel and channel to ground, and a predictable power-up state. -40° to 85° C.



2656: 56 lines of digital I/O

The 2656 has 48 lines of bit programmable I/O, plus four opto-isolated inputs and four high current outputs. The two 24-line ports interface directly with the MPB series opto racks. Drivers included. -40° to 85° C.



Cables, terminal blocks, and other accessories are available.

See our website for more information.

www.octagonsystems.com

PC/104

Serial interface modules



3540: quad UART—software programmable interfaces

No jumper settings are required. Perfect for POS, etc. where field setup is undesirable. Termination and pull-up/down resistors are also software selectable. Interfaces are RS-232/422/485. 16C864 UART supports rates to 921.6 Kbaud and a large 128-byte buffer to reduce CPU overhead and buffer overruns. RS-485 enable/disable is automatic.



EMM: OPTO4-XT—quad optically isolated 232/422/485

Quad channel module provides isolation for three interfaces. Isolated is 1000V channel/channel & channel/ground. Baud rates to 115 Kbaud. The card also has 24 lines of digital I/O.



3550: high speed, low-cost, multi-drop

High speed multidrop capability can be added to any PC/104 CPU module. Configurable to RS-422 or RS-485, the RS-485 enable/disable is automatic. 16C850 supports data rates to 460.8 Kbaud and a large 128-byte buffer to reduce CPU overhead and buffer overruns.



3514: ultra high speed synchronous serial port

Synchronous serial port supports RS-232, RS-422, RS-485, RS-530, RS-530A, or V.35. Burst speeds to 10 Mbps. PC/104-Plus interface.



3502: dual UART, high speed, multiple interface

Dual channel module with each configurable to RS-232/422/485. Configurable to RS-422 or RS-485, the RS-485 enable/disable is automatic. 16C850 UART supports rates to 460.8 Kbaud and a large 128-byte buffer to reduce CPU overhead and buffer overruns.



3512: high speed synchronous serial port

Synchronous serial port supports RS-232, RS-422, RS-485, RS-530, RS-530A, or V.35. Burst speeds to 10 Mbps. Sync/async link.

Features	3540	3550	3502	EMM-Opto4	3544	EMM-4M-XT	3514	3512
Total number of ports	4	1	2	4	4	4	1	1
Can be RS-232 ports	4	0	2	4	2	4	1	1
Can be RS-422 ports	4	1	2	4	2	4	1	1
No. RS-422 receivers	32	32	32	32	10	32	32	32
Can be RS-485 ports	4	1	2	4	2	4	1	1
No. RS-485 transceivers	32	32	32	32	32	32	32	32
Software selectable	yes	no	no	no	no	no	no	no
Maximum data rate Kbaud	921.6	460.8	460.8	460.8	460.8	115.2	10 Mbps	1.8 Mbps
FIFO buffer size	128	128	128	128	16	16	32	12
Optically isolated	no	no	no	yes	no	no	no	no
UART type	16C864	16C850	16C850	16C2850	16C554	16C554	216C32	ESCC85230-8
Auto RS-485 enable	yes	yes	yes	yes	no	no	yes	yes
Digital I/O	0	0	0	24	0	0	0	0
Interrupt status register	no	no	no	yes	no	yes	no	no
Interrupt sharing	yes	yes	yes	yes	yes	yes	no	no
Temp. range	-20° to 70° C	-20° to 70° C	-20° to 70° C	-40° to 85° C	-20° to 70° C	-40° to 85° C	-20° to 70° C	-20° to 70° C
Typ. current @ 5V	400 mA	60 mA	220 mA	300 mA	800 mA	80 mA	450 mA	350 mA

PC/104

Serial modules, audio, GPS, wireless & networking



3544: quad UART

The 3544 has two ports dedicated to RS-232 and two ports configurable for RS-422 or RS-485. The 16C554 quad UART has a 16 byte FIFO on the Tx & Rx lines and a maximum baud rate of 460.8K. Module can assume any one of 16 address locations. Drivers supplied. RS-485 enable/disable is automatic. Drivers included.



Mercury: dual Ethernet and digital I/O

The PCI-based 10/100 Base-T Ethernet channels utilize the NSC DP83815 and are NE2000 compatible. The module has 24 lines of 82C55 compatible I/O with user-configurable pull-up resistors. -40 to 85° C.



EMM-4M-XT: quad UART

This industrial temperature range module has four serial ports using a 16C554 quad UART. All ports can be configured as RS-232, 422 or 485. The RS-232 mode implements all eight signal lines for all ports. Eight different base addresses and 10 interrupt levels are available. Multiple modules can share interrupts. Interrupt status register. Drivers included.



2852: CompactFlash Plus adapter

The 2852 accepts both the Compact Flash and CompactFlash Plus cards providing up to 4 GB of storage. It is also a very easy way to add 802.11b wireless. Accepts Type I and Type II formats in both the memory and I/O modes. Controller operates from the PC/104-Plus bus for highest performance. -40° to 85° C.



CMM-HP: Full-duplex Sound-Blaster™ Pro compatible audio

The card comes in three models, with power outputs from 0.5W to 5W. All have stereo, full-operating, sampling rates to 44.1 kHz, a six-channel mixer with stereo inputs for line, CD, auxiliary, and MIDI, and a mono input for microphone. The outputs include speaker, line and MIDI. Plug and play. Standard audio connectors. -20° to 70° C.



2556: 56K fax/modem

The 2556 is certified in 50 countries. It supports V.92 modem to 56K, error correction V.42, V.42bis data compression, leased line operation, and includes a DPS processor for improved data accuracy. -40° to 85° C.



2851: CardBus card adapter

The 2851 accepts PC Card and CardBus card in the Type I, Type II and Type III formats. Also supports 8-, 16-, and 32-bit data widths. Ejector button for easy removal. Controller operates from the PC/104-Plus bus for highest performance. -40° to 85° C.



2430: SVGA video-CRT, flat panel

Supports CRT, TFT, plasma and other flat panels with resolutions to 1280 x 1024. LCD bias supply. 65540 video chip. -40° to 85° C.

PC/104

Enclosures & power supplies

Embed these power supplies in any PC/104 system, including SBCs with PC/104 expansion. Power is conducted both through the PC/104 pins and via a pluggable connector. The power is routed from the output to the CPU card. These supplies are made for mobile applications and are designed to survive “load dumps.”



The VI04 & VI04ET are the most economical choices for systems that do not need a wide temperature range (VI04) or lower power processors (VI04ET). Generally satisfactory for processors of 300 MHz or less.



The HE104 is the “work horse” of the industry. Its high current capability and wide temperature range make it the choice for most rugged applications.



The HE104-DX is a must for use with high power processors that exhibit high start-up currents. The extra power also insures little or no system derating at the highest temperatures.

Model	Watts	Input range	+5V	+12V	-12V	Efficiency	Temp. range
VI04	25	8–30 VDC	5.0A	1.0A	opt.	up to 85%	0 to 70° C
VI04ET	25	8–30 VDC	5.0A	1.0A	opt.	up to 85%	–40° to 85° C
HE104	50	6–40 VDC	10.0A	2.0A	0.2A	up to 95%	–40° to 85° C
HE104-DX	60	6–40 VDC	12.0A	2.5A	0.2A	up to 95%	–40° to 85° C



CT2 shown with optional power supply

Can-Tainer™—versatile, rugged enclosure with convection cooling

The Can-Tainer system offers a rugged package with a wide range of lengths and end plates for various connector combinations. This industry standard system offers double shock and vibration protection.

Octagon compatible CPU cards are the 2060, 2133 and 2080.

Model	Length	# Modules
CT2	2 Can-Tainer	3
CT4	4 Can-Tainer	5
CT5	5 Can-Tainer	8
CT6	6 Can-Tainer	8
CT8	8 Can-Tainer	11
CT10	10 Can-Tainer	14
CT12	12 Can-Tainer	17
CT-EC00	Set blank end plates	



Blank end plate (two required)



Octagon can supply these and custom versions of the end plates

Micro PC™

Octagon's versatile, "work horse" system

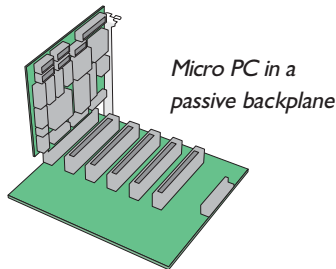
Micro PC systems provide all the necessary components to create a wide variety of embedded solutions. Nearly every component in the line operates from -40° to 85° C. You get COTS performance at industrial prices. The product line uses the PC architecture and the ISA Bus. With backplane data transfer rates approaching 1 MB/sec., the performance exceeds the requirements of most industrial applications. The shielded backplane greatly reduces the noise susceptibility of the system.

Linux drivers are currently being written for the 5070 and all the I/O cards. Contact Octagon for information on release dates.

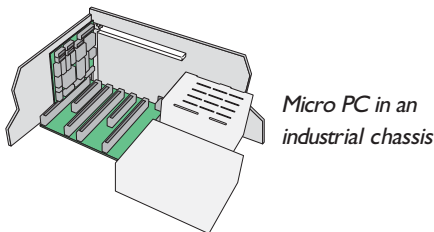
Micro PC CPUs and I/O are fully PC compatible, both electrically and mechanically. In addition to Octagon card cages (page 21), there are several other ways to configure a system. PC mounting brackets are available to plug these cards into any PC backplane. The CPU cards can be used as stand-alone computers

using the corner holes for standoffs in the same manner as PC/104. The flexible backplane option allows a system to be "opened up" for troubleshooting or calibration without disrupting the operation.

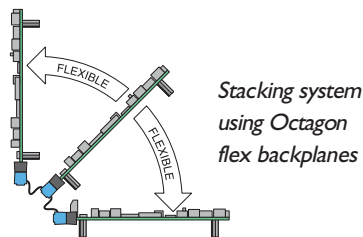
There are two groups of CPU cards: The 5066 and 5070 are mainly engines to drive several expansion cards. The 60x0 series (page 21) have considerably more I/O, including analog, on the same card as the processor.



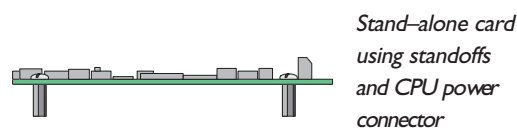
Micro PC in a passive backplane



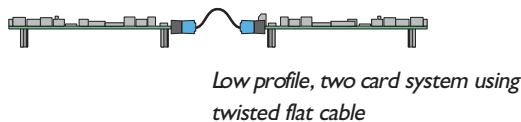
Micro PC in an industrial chassis



Stacking system using Octagon flex backplanes



Stand-alone card using standoffs and CPU power connector



Low profile, two card system using twisted flat cable



Typical of the many card cages available for Micro PC. See page 21.

Micro PC CPU cards



5066 CPU card

Our most popular CPU card in the series comes with DOS 7.1 on flash and is ready for application programs. The 5x86, 133 MHz card has COM1 & COM2, LPT, IDE, opto-isolated interrupts, flash file systems and up to 32 MB of DRAM. -40 to 70° C.



5070 CPU card

Running at 128 MHz, this is our Linux engine for the Micro PC (DOS 7.1 included). It has CRT & flat panel video to 1280×1024 , USB, 10/100 Base-T Ethernet, CompactFlash, EIDE, two COM ports, LPT1, temperature sensor, and DIO. 32 MB SMT DRAM. Built-in diagnostics allow the systems to be tested without a test fixture. -40 to 85° C.

Micro PC™

Expansion cards*



5300: hex counter/timer

Counting, timing, frequency measurement and PWM are supported. The 5300 also includes eight DIO lines, and three of the counter inputs are opto-isolated. Drivers supplied, -40° to 85° C.



5558: octal serial card

For serial I/O intensive applications, the 5558 serial ports are individually configurable for RS-232/422/485. The latter two interface with a terminal block for easy field installation. The two 16C554 UARTs can interrupt or be polled. Drivers supplied, -40° to 85° C



5328: dual motion control card

The 5328 has 32-bit position, velocity and acceleration registers. The programmable, digital PID filter has 16-bit coefficients. Parameters can be changed on the fly. Quadrature encoder accepts differential or SE inputs. Drivers supplied, -20° to 70° C.



5805: battery-backed RAM disk

Accepts up to eight 512K SRAM chips for a total of 4 MB. Read/write times much faster than flash devices. Access light and write protect jumper. Can also accept 512K EPROMs. Drivers supplied, -40° to 85° C.



5500: multiple interface Ethernet

The 5500 has 10 Base-2, 10 Base-T and A.U.I. (optional) interfaces. Supports IEEE 802.3/ANSI 8802-3 standards. Certified Novell compatible. Automatic twisted pair receive polarity detection and correction. Drivers supplied, -40° to 85° C.



5530: SCSI card

The 5530 is a SCSI host adapter capable of controlling seven devices, including hard drives, magnetic-optical drives, CD-ROM drives, etc. SCSI-1 & SCSI-2 compatible. NCR5830/53C400 compatible. Drivers supplied, -40° to 85° C.



5554: quad serial card

Ideal for protocol translation, POS, barcode readers, etc., the 5554 has individual interfaces for RS-232/422/485. The 16C554 UART can interrupt or be polled. Drivers supplied, -40° to 85° C.



5560: ARCNET Lan card

Used in industrial networks. Features variable data length packets, 16-bit CRC check generation, supports 255 nodes and supports star, bus and daisy-chained configurations. Max. data rate 2.5 Mbps. Drivers supplied, -40° to 85° C.



5842: dual PCMCIA

PCMCIA/JEIDA, release 2 compatible. The 5842 accepts two modules, types I, II, and III. Supports SRAM, flash, modem, Ethernet, hard disk, A/D and other modules. Drivers supplied, -20° to 70° C.



5815: disk drive card

Comes with 3.5" floppy drive and accepts virtually all hard drives that conform to MCC mounting specifications. Accepts 1.44 Mb floppy disks with a 500 Kb/s transfer rate. Drivers supplied, -4° to 45° C.

Micro PC™

Expansion cards*



5700: 13-bit analog I/O card

Programmable gain, auto zero and auto calibration offer convenience. The 5700 uses the 12 bits plus sign technology, can take 50,000 samples per sec, has 24 digital I/O lines and has software programmable gains of 1, 10, and 1000. 5V operation. Drivers supplied, -40° to 85° C.



5720: low-cost A/D card

Suitable for applications where 256 levels of analog control are acceptable. It will take up to 90K samples/sec over a 0-5V range. The precision voltage reference is independent of the power. Inputs are protected to ±16V. Also, 24 lines of digital I/O. 5V operation. Drivers supplied, -40° to 85° C.



5540: multifunction I/O card

The 5540 combines several functions to reduce card count and cost. It has two RS-232/422/485 serial ports, printer port, 24 digital I/O, LCD display port and matrix keypad port. Drivers supplied, -40° to 85° C.



5600: 48/96-line digital I/O card

The 5600 has four ports of 24 lines. Lines are programmable as inputs and outputs in banks of four and eight. Outputs can sink 16 mA. The high current 8255 chips can sink 16 mA and source 5 mA. Pull-up and pull-down resistors are jumperable. Drivers supplied, -40° to 85° C.



5710: economical 12-bit A/D card

The 5710 accepts 16 single-ended or eight differential channels. The gain is jumperable to 1x, 10x and 100x. 70K samples per sec. There are two channels of analog output, three counter/timers and 19 digital I/O lines. 5V operation. Drivers supplied, -40° to 85° C.



5750: octal DAC card

Each of the eight outputs is jumperable to ±15V, 0-5V, or 0-10V as well as 4-20 mA current loops. Zero offset and span adjustments on each channel. Resolution is 12-bit. 5V operation. Drivers supplied, -40° to 85° C.



5624: opto-isolated DIO card

The 5624 supports 16 opto-isolated inputs with 3-28 VDC as shipped. User supplied resistor packs can increase the maximum range to 84 VDC. Eight optically isolated outputs will switch loads up to 50V, AC/DC, up to 200 mA. Isolation is 100V chan/chan and 500V chan/ground. Drivers supplied, -40° to 85° C.



5556: modem card

Data rates to 56 Kbaud are achievable with the 5556. Supports V.90, V.34bis and earlier. Leased line support. 1500 VAC isolation line to ground. Drivers supplied, -40° to 85° C.

*Optional bracket for use in industrial PC chassis.

Micro PC™

Low cost, multifunction CPU cards

The 6000 series comprises multifunction SBCs that can be operated stand-alone or expanded through the ISA and/or PC/104 Bus. The 60x0 series will drive up to seven of the 5xx0 series expansion cards. The 40 MHz clock speed is more than adequate for DOS or C code applications and keeps the power dissipation at low levels. All operate with no fan over the -40° to 85° C temperature range. The cards come complete with DOS 7.1, flash, DRAM and CAMBASIC™, a multitasking industrial control language that supports all features on the cards. All have 128K or 512K of battery-backed SRAM for data logging or the storing of systems parameters.



The 6010 is the lowest cost card in this family. The I/O can be expanded through the PC/104 or ISA Bus. Like others in the series, the 6010 will plug into the ISA Bus slot in any industrial PC chassis with those slots.



The 6020 is primarily a digital I/O platform for operation with opto-module racks, security systems, etc. The 65 lines of digital I/O can also interface with keypads and multiline displays.



The four serial ports on the 6030 are fully buffered for high speed operation on all ports simultaneously. It is well suited for protocol and data gathering via external serial devices.



The 6040 was designed for data acquisition and control systems where analog input and output signals are required. It also can control a 24-line opto-module rack.



The 6050 has 41 digital I/O lines including eight high current outputs capable of sinking up to 500 mA at 50V for direct connection to relays, displays, lamps and other electro-mechanical devices.



The 6225 has Ethernet networking capability with software support for DOS. The four serial ports make the 6225 ideal for POS applications. The card can be jumpered to 25 MHz to further lower the power consumption.

Features	6010	6020	6030	6040	6050	6225
DOS 7.1 in flash	yes	yes	yes	yes	yes	yes
COM ports	2	2	4	2	2	4
DiskOnChip support						yes
LPT1	1	1	1	1	1	2
EIDE	2/2					2/2
Floppy	2					2
PC/104 expansion	1					1
DRAM	4 MB	2 MB	2 MB	2 MB	2 MB	4/8 MB
Flash	1 MB	1 MB	1 MB	1 MB	1 MB	2 MB
BBRAM	128K	128K	128K	128K	128K	512K
Digital I/O	17	65	17	41	41	34
High current out					8	
Analog in/out				8/2		
Ethernet						10 Base-T
Power max/standby	2.4/0.9W	2.5/0.9W	2.2/0.9W	3.0/1.3W	2.2/0.9W	2.4/0.8W
Shock/vibration	40/5g	40/5g	40/5g	40/5g	40/5g	40/5g

Micro PC™

Enclosures & power supplies

All the 5000 and 6000 series cards are fully compatible with industrial PC chassis. The Micro PC card cages below were designed to add additional ruggedness and protection for the cards.

527x card cages are available in 4-, 6-, and 8-slot versions. Outer cover has a tough, powder coat surface that is perforated top and bottom for free air flow. Slotted holes are provided for rear mounting. Not shown are two “keeper” strips that prevent the cards from moving during severe vibration. The card cages are pre-punched with four holes on the bottom for table mounting. The 7155 power supply is shown installed and is optional. The power supply takes two slots.



The 520x series are for OEM applications where the lowest cost is needed. Outer cover has a tough, powder coat surface that is perforated top and bottom for free air flow. Slotted holes are provided for rear mounting.

The 520x series accepts a variety of power supplies with both AC and vehicular power supplies.

The 5252, 2-slot, and the 5253, 3-slot (shown), OEM card cages are ideal for small systems. Screw terminals on the back bring the power to the backplane. The 5252 and 5253 have “keeper” brackets to resist card movement under vibration.



The 5254 four-slot card maintains a low profile taking advantage of the low-cost construction. Spacers are used to stabilize the inner sides of each stack and prevent any movement under vibration.

The MK-20, 2-slot, and the MK-30, 3-slot (shown), are the ultimate in packaging economy. The cards are stacked in the same manner as the PC/104 shown on page 12 using 0.875” spacers. Unlike the PC/104, these have the advantage of being “fanned” open during operation.



Accessories

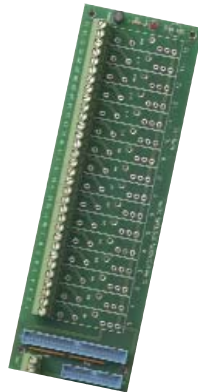
Opto racks & modules, interface boards, keypads and cables

Industry standard opto-module racks & opto-isolator modules

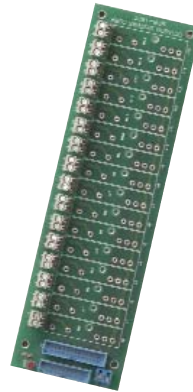
These racks are constructed with material to withstand -40° to 85° C operation. The heavy duty screw terminals are over-rated to prevent mechanical failure. The units have both the industry standard 50-pin connectors fully compatible with all major manufacturers and the modern 26-pin connectors compatible with all Octagon CPU and I/O cards. The 26-conductor cables are much easier to route in congested industrial enclosures. The MPB series come in 8-, 16-, and 24-position models. The CMA-26 cable is used for all models to connect to Octagon products. The MPB-16-PC can be connected to any PC compatible printer port.



MPB-08
 6 x 3.25 in. (modules optional)



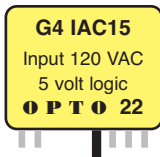
MPB-16
 10 x 3.25 in.



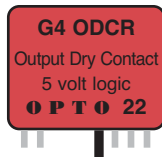
MPB-16-PC
 10 x 3.25 in.



MPB-24
 7.5 x 6.25 in.



G4 IAC15
 Input 120 VAC
 5 volt logic
OPTO 22



G4 ODCR
 Output Dry Contact
 5 volt logic
OPTO 22

Each module has 4000V of isolation between the control side and field circuits. Outputs are rated up to 3A depending upon the module and application. Temperature range is -30° to 70° C.

G4-IAC5	Input	90-140VAC
G4-IAC5A	Input	180-280VAC
G4-IDC5	Input	15-32VAC
G4-IDC5B	Input	4-16VAC
G4-IDC5D	Input	2.5-28VAC
G4-OAC5	Output	12-140VAC
G4-OAC5A	Output	24-280VAC
G4-ODC5	Output	5-60VDC
G4-ODC5A	Output	5-200VDC
G4-ODC5R	Output	Contact

Accessories

Opto racks & modules, interface boards, keypads and cables



Cables

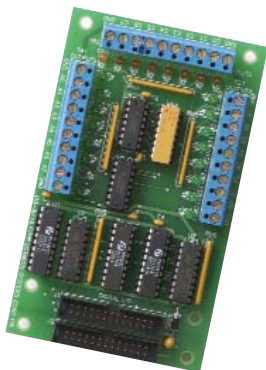
Octagon has a variety of cables that serve all our products. See our website for more information.



Matrix keypads

The KP-1 is a low-cost keypad, with elastomeric contacts that are sealed from environmental conditions. It is splash resistant. The unit is 3.41" square and 0.7" deep including the connector. 100 million operations min. The 36" flat cable is terminated with a 10-pin, 0.1" IDC connector that is compatible with Octagon cards that support matrix keypads.

The KP-3 is suitable for more demanding and/or custom applications. Rated NEMA-2, the keypad is housed in one-piece, military grade rubber with an EMI shield that covers the panel cutout. The unit is 3.1" square, extends 0.45" in front of the panel and 0.55" behind the panel. Three million operations, minimum. The 36" flat cable is terminated with a 10-pin, 0.1" IDC connector that is compatible with Octagon cards supporting matrix keypads.



High voltage/current interface boards

The ITB-16/8 and ITB-8/16 interface boards safely mate 3–24V devices with 5V logic I/O. Transient protection to $\pm 30V$. Outputs sink loads to 50V and 100 mA. Status LEDs on each line. Screw terminals for easy connection to field wiring. ITB boards connect to any Octagon, 26-pin digital I/O port. The ITB-16/8 has 16 inputs and eight outputs while the ITB-8/16 has eight inputs and 16 outputs.



Terminal boards

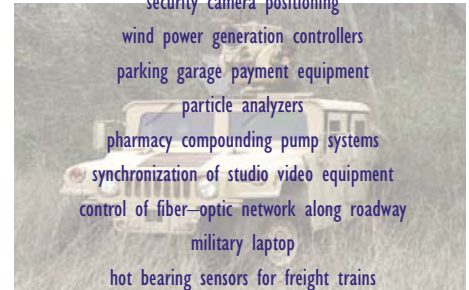
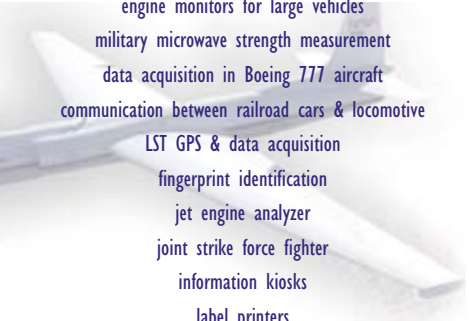
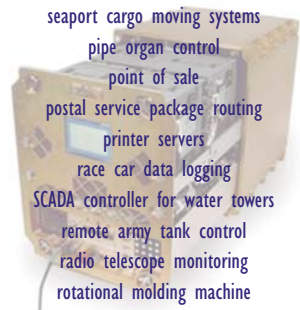
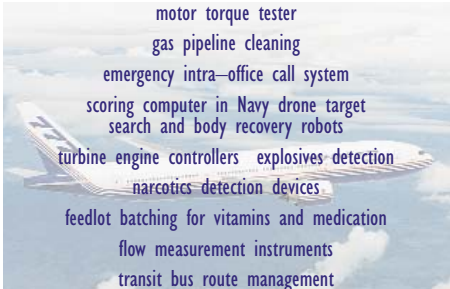
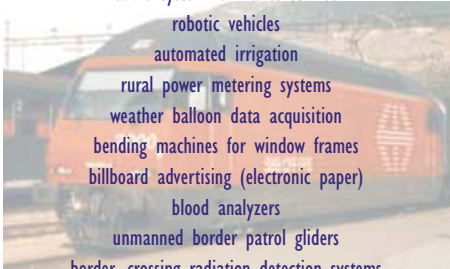
The STB series of terminal boards interface directly with many Octagon products. They were designed to be as small as possible to save space. The STB-26 (shown) has two connectors for daisy-chaining with other products. Available in 10-, 14-, 20-, and 26- position configuration.

Octagon delivers solutions.

nickel plating system
radio-controlled devices
air traffic control
airborne data acquisition 1394 protocol converter
aircraft location system
aircraft landing systems
airport parking data acquisition
air traffic control tower
power plant stack monitor
asphalt recycling machine cutting granite counter tops
audio system for dance studios
robotic vehicles
automated irrigation
rural power metering systems
weather balloon data acquisition
bending machines for window frames
billboard advertising (electronic paper)
blood analyzers
unmanned border patrol gliders
border-crossing radiation detection systems
bridge de-icing systems building access control systems
buoy data acquisition
casino gaming systems
cellular phone power strength meters
cathodic pipeline protection systems
control of high speed printing presses
people counters on public transportation
data acquisition on fire trucks
naval decoy launch systems
satellite uplink control
election machines
intrusion detection
motor torque tester
gas pipeline cleaning
emergency intra-office call system
scoring computer in Navy drone target
search and body recovery robots
turbine engine controllers explosives detection
narcotics detection devices
feedlot batching for vitamins and medication
flow measurement instruments
transit bus route management
food holding ovens
fuel cell controller international space station display control
steel furnace controller
gas dispensing for silicon wafer production
golf cart GPS and communication
aluminum can recycler
automated strength testing
ignition coil testing
battery monitoring systems
greenhouse controllers

robotic rat killer (yes, it's true)
handheld computer
metal heat-treating machines
heavy machinery for the timber industry
autopilots for forklifts
high speed wireless telemetry
highway warning signs
traffic lane controllers industrial humidity control
HVAC systems
hybrid electric car, automobile MP3 player
vision & imaging systems
energy monitors
peak demand controllers
oil pumping control and monitoring
herbicide spraying system
automated fast food
museum fire protection
remote network manager
mountain top weather station
turret position indicator in army tank
turbine blade angle in hydroelectric generator
oil well "down-the-hole" instrumentation
seaport cargo moving systems
pipe organ control
point of sale
postal service package routing
printer servers
race car data logging
SCADA controller for water towers
remote army tank control
radio telescope monitoring
rotational molding machine
ski lift controller
soccer goal scoring systems
army mine detection and detonation equipment
high speed tape dispenser
highway toll collection
city traffic flow optimization systems
nuclear power plant backup monitoring
shuttle payload training module
cutting and canning salmon
automated timber sawmill
water pumping station controller
waste treatment plants pacemaker calibration instrument
patient monitors
medical X-ray machines, messaging & audio on trains & buses
metal stamping machines
military water purification systems
military wireless IP router
industrial laser control
industrial radio interface

injection molding machines
engine monitors for large vehicles
military microwave strength measurement
data acquisition in Boeing 777 aircraft
communication between railroad cars & locomotive
LST GPS & data acquisition
fingerprint identification
jet engine analyzer
joint strike force fighter
information kiosks
label printers
lane controllers
leak detectors
lighting system controllers
locomotive upgrade instrumentation
mammography machines
automatic liquor dispenser
leakage test for braking systems
motion compensation crane for marine applications
subway door controllers
cable harness tester
plasma etching monitoring
remote weather station laser printer tester
silicon wafer transporter
portable gas chromatograph
engine test stand
RFID inventory system
weighing and mixing concrete
PLC interface
protocol converters
wheelchair control
airport weather system
plastic pipe testing
aluminum casting process
relay tester
space shuttle camera control
nondestructive ultrasound test equipment
security camera positioning
wind power generation controllers
parking garage payment equipment
particle analyzers
pharmacy compounding pump systems
synchronization of studio video equipment
control of fiber-optic network along roadway
military laptop
hot bearing sensors for freight trains



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