OCTAGON SYSTEMS®

PALM-SIZED PENTIUM PERFORMANCE

The 5066 achieves a Norton 5.0 SI rating of 288.

Applications

- ❍ Real time software, like QNX®
- ❍ Motion control
- ❍ Power production and transmission
- ❍ Operator interface with Windows
- ❍ Multiple Windows applications
- ❍ Networked control systems
- ❍ Automated mobile systems
- ❍ High performance networks
- ❍ High speed data acquisition

Description

The 5066 brings Pentium® performance to the Micro PC platform. It can run DOS, Windows, Windows NT, QNX and other operating systems. In addition to the processing power, the card has 16C550–compatible serial ports, an enhanced bidirectional parallel port, keyboard controller, RTC and opto–isolated interrupts. The card also includes 1 MB of flash with DOS 6.22 and a flash file system included.

5066 MICRO PC™ CPU CARD

FEATURES

- ❍ 5x86–133 MHz
- ❍ DOS 6.22 in ROM
- ❍ Windows®, Windows NT, QNX® compatible
- ❍ Phoenix BIOS with industrial extensions
- ❍ Advanced power management
- ❍ Flash disk with programmer
- ❍ Up to 33 Mbytes DRAM
- ❍ COM1 and COM2 serial ports
- ❍ Multifunctional parallel port
- ❍ Watchdog timer
- ❍ Diagnostic software
- ❍ Flash file system
- ❍ Opto–isolated interrupts
- ❍ 5V operation
- ❍ MTBF 13.6 years

Two models fit many applications

The 5066 is available with the 133 Mhz, 5x86 processor, which gives about the same performance as a 75 MHz Pentium. With 1 MB of DRAM (expandable to 24 MB) and 1 MB of flash memory, both versions can handle even the most demanding applications with horsepower to spare.

DOS in ROM convenience

DOS 6.22 is stored in the solid–state disk and is always present. Turn on the system and get the same C:\> prompt that you get on a desktop PC. DOS executes from high memory for maximum execution speed. The 5066 is also compatible with most operating systems including Windows, Windows NT, QNX, and others.

Diagnostic software simplifies system testing

The 5066 has built–in diagnostic software that can be used to verify on–card I/O and memory functions. Just move the diagnostic jumper and apply 5V. The two–color LED verifies on–card functions. No monitor, keyboard, software, test fixtures or test equipment are required.

Flash file system stores data in disk format

The flash memory is formatted in the same manner as a disk. The flash file system lets you read and write data and executable files in the same manner as a floppy or hard disk.

Watchdog timer resets system automatically

The watchdog timer is used to reset the system if the program stops unexpectedly. The watchdog is enabled under software control with a fixed time–out of 1.6 sec.

SETUP information stored in EEPROM

The SETUP information is stored in serial EEPROM rather than in the battery–backed RAM used on desktop PCs. This means the SETUP information is never lost when the battery becomes depleted. The system uses 512 bytes leaving 1,536 bytes available to the user.

External interrupts are opto–isolated for safety

Industrial environments often include emergency shut–down inputs or an input to synchronize the system with external events. These inputs can also be used to trigger the power management modes. The interrupt inputs are opto–isolated for safety and are 4–6V compatible.

More interrupts available on the 5066

Real time operation often requires many interrupts for high speed responses to events. Five of the AT interrupts can be jumpered to the 8–bit ISA Bus to replace those used on the CPU card. This allows considerable flexibility in configuring expansion cards. See the chart below for jumper configurations.

ISA BUS INTERRUPT	JUMPERABLE TO CARD INTERRUPT
2	IRQ9
3	IRQ3 or IRQ10
4	IRQ4, 10, 11
5	IRQ5, 7, 14
6	IRQ5, 6, 11, 12, 14
7	IRQ7 or IRQ5

Solid–state disks tolerate shock and vibration

SSD0 contains DOS, the BIOS, utilities and a flash file system in a 512K EPROM. The SSD1 disk includes 1 MB of flash memory.

Fast EDO DRAM memory

The 5066 comes with 1 MB of surface mount, EDO DRAM installed. EDO DRAM is up to 20 percent faster than standard DRAM making the expense of L2 cache memory unnecessary in most cases. Up to 32 Mbytes of additional memory can be added via a DIMM memory module. Under OEM contract, 8 MB of surface mount ca be ordered. In shock and vibration environments, DIMM modules are substantially more rugged than SIMM memories.

Advanced hardware protection

The 5066 includes a number of protective devices that enhance the reliability in the industrial environment and help prevent accidental damage during system development. These include:

- ❍ Serial ports that exceed the IEC 1000, level 3 ESD protection
- ❍ Serial port backdrive protection
- ❍ Parallel port backdrive protection
- ❍ Protection for the parallel port against damage if the printer cable is plugged in or unplugged when the power is on
- ❍ Protection for the 5V power bus against over– and reverse–voltage
- ❍ Opto–isolated interrupt inputs

Advanced Power mManagement (APM)

Power management can be used to reduce power consumption or to freeze the state of the program when a power management interrupt occurs. Power consumption can be reduced more than 80 percent, reducing the heat load and extending battery life in mobile applications. The APM functions are:

- ❍ Suspend/resume operation via SMI input and software
- ❍ Wake up through various interrupts, including serial
- ❍ Slow CPU by dividing clock
- ❍ Contextual save to disk.

These functions are implemented in both software and with opto–isolated SMI and suspend/resume inputs.

Real time clock is battery–backed

The 5066 has a built–in, AT style calendar/clock. An external 3.6V, AT clock battery plugs into the card, which powers the clock during powerdown.

Speaker and keyboard are AT compatible

The speaker will drive 8–50 ohm speakers and is terminated in a standard PC–style connector. The keyboard port uses a standard PS–2 style connector. A keyboard and monitor are not required for operation.

Pushbutton provides complete reset

You can reset the system without turning off the power using the hardware reset button. It also provides a more complete reset than the <CTL> <ALT> <DEL> method.

COM serial ports protected

The serial ports are 16C550 compatible and programmable to 115K baud. The 16–bit FIFO buffers reduce processor overhead and ensure that characters will not be lost during high speed transmissions. Both ports have RS–232 interfaces while COM2 is also jumperable to RS–485. The ports are ESD–protected to the following standards:

Contact discharge	±6 kV
Air–gap discharge	±8 kV

Bidirectional parallel port is versatile

This port supports the IEEE 1284 with EPP and ECP modes, and has backdrive protection. It may also be used to interface with a floppy disk. The data lines have 24 mA of drive. The parallel port can perform several functions, including the following industrial I/O:

- ❍ LPT1 for PC compatible printers
- ❍ 17 digital I/O lines
- ❍ Floppy drive

5V operation lowers system cost

The 5066 operates from a single 5V ±5% supply. There is a resident 5V/3.3V converter to reduce CPU power consumption. The RS–232 voltages are generated on–card.

Rugged environmental operation

The CPU heat sink temperature may range from –40° to 70° C while operating. The nonoperating temperature is –55° to 90° C. The range of relative humidity is RH 5% to 95% and must be noncondensing. The 5066 will withstand 20g of shock and 5g of vibration.

TECHNICAL SPECIFICATIONS

CPU
586–133 MHz

ISA BUS
8–bit compatible interface

BIOS
Phoenix, AT compatible with industrial extensions

DOS
DOS 6.22 in ROM

DRAM
1 MB, zero wait state, EDO, expandable to 33 MB with DIMM modules

SSD0
Software suite supplied in 512K EPROM

SSD1
2 MB flash with flash file system

COM
COM1 and COM2, 16C550 compatible, 300 to 115 kBaud. PC compatible.

IEC–1000, level 3 ESD protection, back-drive protection.

LPT1
IEEE1284 EPP and ECP modes, 24 mA drive levels

KEYBOARD
AT type keyboard port with PS–2 style connector

BATTERY
External 3.6V lithium battery required to battery–back clock

SPEAKER
PC compatible speaker port

EXTERNAL INTERRUPT
Opto–isolated interrupt, accepts 4.5–6V input. 300 VDC of isolation from card circuitry; 100 VDC from other signals.

POWER SPECIFICATIONS
5V ±5%, 300 to 920 mA, typical, depending upong the mode.

SIZE
4.5" x 4.9" x 0.75"

ENVIRONMENT
–40° to 70° C operating; 70° C is maximum CPU case temperature; forced air cooling may be required above 50° C unless power management is used.

–55° to 85° C, nonoperating

RH 5% to 95%, noncondensing

–300 to 30,000 ft., altitude tolerance

ORDERING INFORMATION

The 5066 is supplied with User Manual, PC mounting bracket and utility disk.

4500	5066–586–133 MHz, CPU card, 1 MB DRAM, 1 MB flash
4507	DEV–5066–586–133 MHz, 1 MB, development system
2746	VTC–9F, serial cable, DB–9, female, 6 ft.

OCTAGON SYSTEMS®

6510 W. 91st Avenue
Westminster CO 80030 USA
PH: 303–430–1500
FAX: 303–426–8126