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CR7

Single Slot Celeron®/Pentium® III PC 6U CompactPCI® Embedded Computer

Single Board Computers

Features

- Intel® Celeron® 566 MHz
- Intel® Pentium® III 700 MHz to 1 GHz
- Ultra compact, 1 slot only
- Embedded NT, Windows® 98, Windows® 2000, Windows NT®, QNX, VxWorks®, Linux®
- Up to 512 MB SDRAM with ECC
- 1.8“ Flash Drive
- VGA/LCD up to 1600x1200 4(2) MB high-speed SDRAM
- Fast Ethernet 10/100 Mb
- Wide SCSI up to 40 MB/s
- PCI bus enhanced IDE
- MIL-STD-1553
- PMC extension slot
- Four serial I/O with FIFOs RS-232 or RS-422 interface
- Two IEEE 1284 parallel ports
- Two USB connectors
- Watchdog, NMI ticker, temperature sensor
- Single +5 volt supply only
- Optional -40°/+85°C
- Conduction cooling
- High shock and vibration immunity with stiffener bars and wedge locks
- Conformal coating
- Custom specific, low cost assembly versions



CR7 is a CompactPCI® all-in-one 6U single board computer designed to meet the needs of embedded application developers addressing markets like industrial automation, medical, scientific, imaging, telecommunication, military and aerospace.

The ultra compact single slot, all-in-one design with flexible processor and memory configurations, and an impressive array of on-board peripherals includes video interface, Ethernet, SCSI, optional MIL-STD-1553, and PMC extension. This combined with a custom specific assembly service provides optimized price/performance for a variety of OEM applications.

Rugged needs are addressed with optional conduction cooling and extended temperature range of up to -40°C to +85°C (conduction cooled), increased shock and vibration immunity using stiffener bars and wedge locks, and conformal coating.

Special features include four serial channels with flexible RS-232 or RS-422 interfacing, LCD controller and a single +5V supply. Supported operating systems are Windows® 2000, Windows NT®, Windows® 98, QNX, VxWorks®, Linux® and others.

Specifications

CompactPCI - Intel® 21550
- 32-bit PCI-to-PCI bridge for up to 8 slots (33 MHz)
- J1+2, 2 mm pin and socket connectors (IEC-1076-4-101)

Processor - Socket 370 (FCPGA) or BGA2
- Scalable processing power with flexible processor design
- Intel Celeron: 566 MHz & Intel Mobile Celeron: 400 MHz
- Intel Pentium III: 700 MHz to 1 GHz &
  Mobile Pentium III: 500 MHz and 700 MHz (please see price list for latest CPU versions)
- High efficiency on-board switching regulator (DC/DC)
- Fanless cooling with heat sink

Performance
- 128MB RAM, 1024 x 768 64K color, ST34502LW HD

		Winstone 99	
CPU	Frequency	Business	High End
Celeron	566 MHz	21.5	32.0
Mobile Pentium III	500 MHz	24.0	34.0
Mobile Pentium III	700 MHz	26.1	43.4
Pentium III	700 MHz	26.1	43.4
Pentium III	850 MHz	27.0	47.0
Pentium III	1 GHz	28.0*	50.0*

(* estimated)

Chipset - Intel 82443BX, 82371EB
- 100 MHz system bus with Pentium III and Mobile Pentium III
- 66 MHz system bus with Celeron
- PCI burst mode transfers faster than 110 MB/s, 32-bit wide PCIbus (33 MHz)

Cache
- Celeron: L1: 32 KB, L2: 128 KB, full speed
- Pentium III: L1: 32 KB, L2: 256 KB, full speed
- Values also valid for Mobile processors

Memory - PC66/100
- 64 to 512 MB SDRAM, 72-bit wide with error correction (ECC)
- Rugged design with soldered chips

Flash Drive
- Internal 1.8 IDE Flash Drive for extended temperature range and higher shock/vibration immunity

PMC Extension Slot - IEEE P1386/1386.1
- 32-bit PCI bus interface with front and rear I/O
- Supports ccPMC Draft standard Vita 20 - 199x with N-style

VGA and LCD - CT 69030/6900
- 64-bit Windows accelerator and LCD flat panel interface
- On-chip high-speed 4/2 MB synchronous DRAM (83 MHz)
- Flexible 9-, 12-, 15-, 18- or 24-bit panel TFT interface

CRT Resolution	CT 69030	CT 69000
1024 x 768	16M @ 100Hz	64K @ 100Hz
1280 x 1024	16M @ 75Hz	256 @ 75Hz
1600 x 1200	64K @ 60Hz	-

Fast Ethernet - AMD 79C973A
- 10/100 Mb/s controller with PCI local bus DMA
- 12 Kb FIFO buffers for Receive and Transmit
- 10BaseT and 100BaseTX auto-negotiation interface

Wide SCSI - SYM 53C875
- Wide SCSI controller with PCI local bus DMA
- SCSI transfer speed up to 40 MB/s
- Active low power termination on-board

EIDE
- Ultra DMA/33 sync.
- DMA mode up to 33 MB/s
- PIO mode 4 and bus master IDE up to 16 MB/s
- Three devices supported via local EIDE connector and rear I/O

MIL-STD-1553 - DDC BU-61688
- BC, RT and MT mode, 128 KB shared RAM (limited access to max. 8 KB shared RAM, BU-61588 compatible)
- Transceiver with long and short stub interface

Serial I/O - RS-232/422
- Four asynchronous 16550-compatible full-duplex serial ports
- High-speed transfer up to 115.2 kb with 16 byte FIFOs
- COM1, COM2: RS-232 or RS-422 interface
- COM3+4: RS-232 or RS-422 interface

Parallel Port
- Two bi-directional
- IEEE 1284-compatible enhanced parallel port (EPP and ECP)

Floppy
- One channel 3.5” floppy drive controller
- 720 KB and 1.44 MB

USB
- Two 12 Mb/s universal serial bus channels

Keyboard and Mouse
- PS/2 compatible

Real-Time Clock
- RTC 146818 compatible

CMOS RAM
- 114 bytes non-volatile CMOS RAM

Backup
- On-board Li Battery (500 mAh) or +5V standby

EEPROM
- 4 kbit serial EEPROM for non-volatile user data

Watchdog
- Activates reset under software control (550 ms)

Temperature Sensor
- Local and remote temperature (CPU case) software readable from -65°C to +127°C, 1.0°C increments

NMI-Ticker
- User programmable NMI timer 0.3 to 18 ms

Speaker
- Internal speaker (1.0 kHz to 4.2 kHz)

LED
- On-board LED (red) user programmable

BIOS Features
- AMIBIOS, in-system programmable Flash ROM, CPU, memory and IDE auto-detection/selection
- Integrated VGA, Ethernet and SCSI BIOS ROM
- Password protection, BIOS post, system and video BIOS shadowing
- Extensive setup with remappable serial/parallel ports
- Operation without disk, keyboard, and video

Hot Swap - compliant to PICMG CompactPCI 2.1

- Other non-System boards can be removed or added with power on
- Access to or interrupt on backplane/ENUM signal supported

H.110 Friendly

- Versions with non-populated J4 (see Front and Rear I/O table) does not interfere with H.110 bus on P4

Power Requirements

- +5V: Required
- +3.3V, ±12V: Only if required by mounted PMC module

Power Allowances - PMC Slot

- +5V, +3.3V: total power max. 7.5W
- ±12V: 50 mA each

Power Consumption

- Typical current +5 Volt, 128 MB RAM without keyboard, hard disk, modules, etc.
- Idle values measured at DOS prompt, maximum power saving
- Operating values measured at DOS prompt, no power saving

CPU	Frequency	Idle	Operating
Celeron	566 MHz	1.5 A	3.4 A
Mobile Pentium III	500 MHz	1.5 A	2.7 A
Mobile Pentium III	700 MHz	1.6 A	3.1 A
Pentium III	700 MHz	1.6 A	4.6 A
Pentium III	850 MHz	1.7 A	5.4 A
Pentium III	1 GHz	1.7 A	5.9 A

Mechanical

- 6U, 1-slot wide , 233mm x 160mm x 20.32mm

MTBF

- Calculations are available in accordance with MIL-HDBK-217. Please contact SBS for details.

Safety

- All PWBs are manufactured with a flammability rating of 94V-0 by a UL recognized manufacturer.

Temperature

- Note: For detailed information about the operating temperature behavior of the board of any style it is absolutely necessary to consult the manual. The processor type and speed, the use of a PMC module and the type of cooling influences the board temperature range.
- All values under typical conditions without PMC module

Standard Temperature Ranges (except N-style)

- Operating: 0° to 70°C
- Storage: -40° to +85°C

Extended Temperature Ranges (except N-style)

- Operating: -40° to +70°C
- Storage: -40° to +85°C

Extended Temperature Ranges (N-style)

- Operating: -40° to +85°C
- Storage: -55° to +105°C

CPU	Frequency	Max. Card Edge Temp.
Celeron	566 MHz	69°C
Mobile Pentium III	500 MHz	85°C
Mobile Pentium III	700 MHz	79°C
Pentium III	700 MHz	59°C
Pentium III	850 MHz	53°C
Pentium III	1 GHz	38°C

Humidity

- Operating: 5% to 95% @ 40°C, 15,000 ft (4.5 km) altitude
- Storage: 5% to 95% @ 40°C, 40,000 ft (12 km) altitude

Shock and Vibration (C-, I, E-, R-style)

- C-, I-style: 12g / 6ms, 2grms @ 5Hz to 100Hz
- E-, R-style: 20g / 6ms, 2grms @ 5Hz to 2000Hz

Shock and Vibration (N-style)

- 40g / 11ms, 14grms @ 5Hz to 2000Hz, 30 minutes each axis

Styles

Styles	C	I	E	R	N
Front panel	√	√	√	√	-
Front stiffener	-	-	-	-	√
Middle stiffener	-	-	√	√	√
Wedge Locks	-	-	-	-	√
Parts soldered	-	-	√	√	√
Li battery	√	√	-	-	-
Ext. temperature	-	√	-	√	√
Conformal coated	-	-	-	√	√
Conduction-cooled	-	-	-	-	√

Front and Rear I/O with Transition Module CTM6C

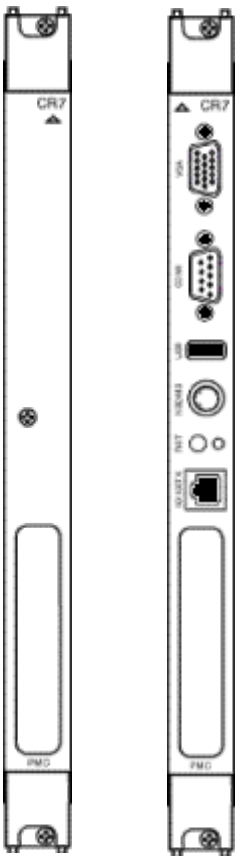
Function	Rear I/O (J3 + J5)	Rear I/O (J4)	Front I/O
VGA	10-pin	-	HD-15
10/100Base-TX	16-pin	-	RJ-45
Keyboard/Mouse	-	-	Mini-DIN
Multi I/O [1]	26-pin	-	-
Floppy	26-pin (1.25 mm)	-	-
USB (x2)	-	-	USB (x1)
COM 1–4	10-pin (x4)	-	D09 (x1)
LTP 1	26-pin	-	-
Reset, Speaker	-	-	yes
LED	-		yes
EIDE [2]	-	44-pin	-
LPT 2	-	26-pin	-
LCD	-	40-pin	-
SCSI	50-pin (narrow)	68-pin (wide)	-
MIL-STD-1553	yes	-	-
PMC	yes	-	-

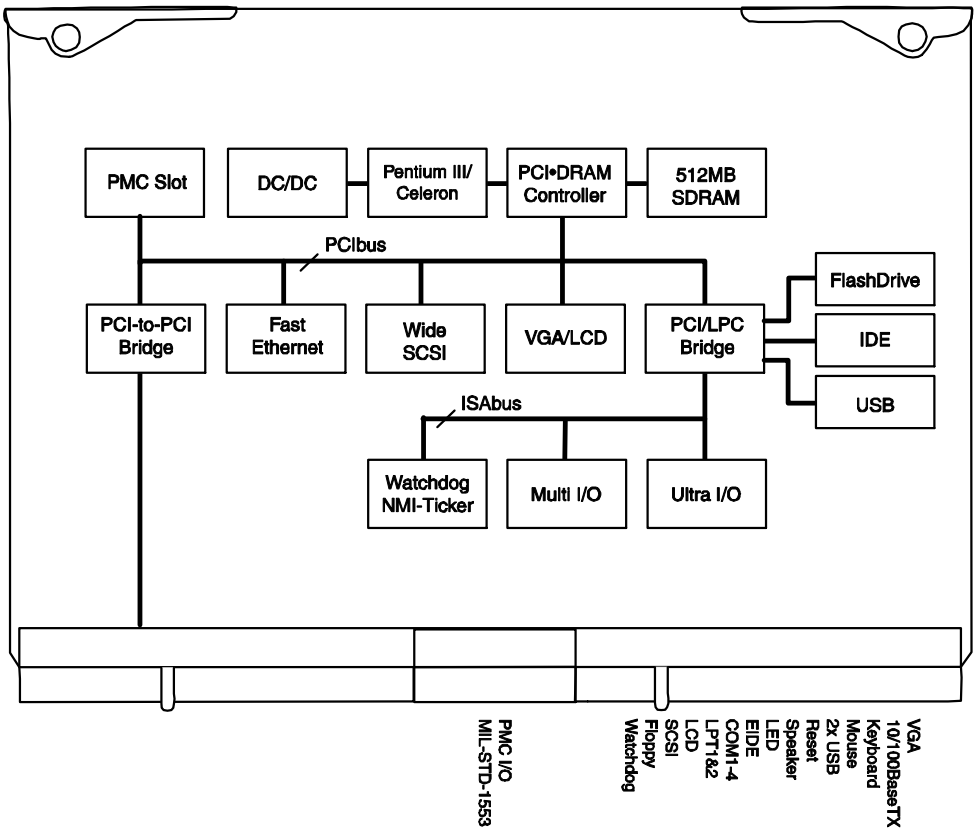
1 Multi-I/O connector with keyboard, mouse, two USB, reset, watchdog, and speaker.
2 Additional 44-pin on-board connector for FlashDrive.



CR7

Block Diagram





Ordering Information

Hardware Accessories

CPC-R422C	RS-422 driver for one channel (max. 2)
CTM6A	I/O transition module for 6U backplane
CTM6B	As above with Wide-SCSI (68-pin) connector
CTM6C	As above with J3, PMC, MIL-STD-1553, and Wide-SCSI (68-pin) connector
SC304F	Floppy disk 3.5",19" box: 3U/4TE cable
SC306HI10G0	IDE hard disk 3.5",10 GB,19" box: 3U/6TE cable
YLBCOM304A	Flat cable for 2x COM, 3U/4HP front-panel
YLBVGA304A	Flat cable for VGA & 2x COM,3U/4HP front-panel
YLBLPT308C	Flat cable for LPT, Ethernet (RJ45), keyboard & mouse (2x miniDIN), 3U/8HP front-panel
XKAAPS2SPLIT	Cable for keyboard and mouse on front panel

Chassis

SCC784TE08CR7
Starter cage: 19", 7U, 84TE card cage, 8x 6U CPCI slots (6U, right); 3x fan, 250W power supply +3.3V/12A, +5V/22A, +12V/7A, -5V/0.3A, -12V/0.8A, EMC, CD-ROM, 3.5" floppy drive, 10 GB hard disk, I/O transition module (CTM6C) with front panels (YLBCOM304A, YLBVGA304A, YLBLPT308C), 0ÞC/+50Þ C

Operating Systems

DOS-MD600x	MS-DOS operating system
WIN-98xC	Windows 98 operating system
WIN-NT4xC	Windows NT 4.x operating system
WIN-2000xC	Windows 2000 operating system
VXW2-BCX7	VxWorks board support package, Tornado 2
WIN-ENT4xE	Windows Embedded NT 4.x

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