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CL7

All -In-One Celeron®/Pentium® III 3U CompactPCI® Embedded

Single Board Computers

Features

- Two processor options: Celeron® 566 MHz or Pentium® III 700–1000 MHz
- Low Power Mobile CPUs
- Ultra-compact, all-in-one PC in one slot
- Multiple operating systems: Windows® 20000/XP, QNX, VxWorks®, Linux
- SDRAM up to 512 MB
- Enhanced IDE interface for Flash drive or local 2.5-in. hard disk
- Internal 3.5-in. floppy drive
- Optional DVI-D interface for LCD display, front-panel port
- PICMG 2.1 Hot Swap-compliant
- Front-panel PS/2 keyboard/mouse port
- VGA Controller that supports up to 1600 x 1200 resolutions
- 10/100 Mb/s front-panel Ethernet port
- IEEE 1284-compliant parallel port
- One or two front-panel opto-isolated serial I/O ports with 16-byte FIFOs, RS-232 or 422 interface
- Two front-panel USB ports
- Watchdog, temperature sensor
- Customer-specific, low cost assembly versions



CL7 is a CompactPCI® all-in-one 3U single board computer designed to meet the needs of embedded applications in such areas as industrial automation, military and aerospace, scientific, medical, imaging, and telecommunication (high-bandwidth, broadband data or intelligent network switching). The CL7 supports such operating systems as Windows® 2000/XP, QNX, VxWorks® and Linux®.

The ultra-compact all-in-one design offers value and flexibility with multiple processor and memory configurations, and an impressive array of on-board peripherals including a video interface, and Fast Ethernet. Couple this with customer-specific assembly service and the CL7 provides optimized price vs performance for all types of OEM applications.

The CL7 offers rugged options for extreme environments with extended shock and vibration immunity and extended temperature range tolerance of up to -40°C to +70°C.

Special features include two serial ports (COM1—RS-232, COM2—RS-232 or RS-422), video interface, IDE interface, USB interface, and optional LCD interface.

Specifications

CompactPCI - Intel 82810
- 32-bit 33 MHz PCI Controller for up to eight slots
- J1 + 2, 2 mm pin and socket connector (IEC-1076-4-101)

Processor - Socket 370 (FCPGA) or BGA2
- Scalable processing power with flexible processor design
- Intel Celeron 566 MHz
- Intel Pentium III 850 MHz, 1 GHz
- Intel Mobile Pentium III, 700 MHz
- High-efficiency on-board switching regulator (DC/DC)
- Fanless cooling with heat sink

Contact SBS Technologies for price list of latest CPU versions

Performance			Winston 99
CPU	Frequency	Business	High End
Celeron	566 MHz	22.0	22.0
Mobile Pentium III	700 MHz	25.0	25.0
Pentium III	850 MHz	26.0	26.0
Pentium III	1 GHz	30.4	32.8

(128 MB RAM, 1024 x 768 64 KB color, IBM® DJSA-210)

Chipset – Intel 82810
- 100 MHz system bus with Pentium III and Mobile Pentium III
- 66 MHz bus with Celeron
- PCI burst mode transfers up to 110 MB/s
- 32-bit 33 MHz PCI bus

Cache	Level 1	Level 2
Celeron*	32 KB	128 KB (full speed)
Pentium III*	32 KB	256 KB (full speed)

* Values are valid for Mobile processor

Memory – PC 100
- Two-speed SDRAM
- Two DIMM sockets, 64-bit, 64–512 MB

Hard Disk or Flash Drive
- Internal 2.5-in. IDE hard disk or 1.8-in. IDE flash drive (up to 512 MB)

  Flash Disk for extended temperature range and higher shock/vibration immunity. Hard disk only with 12 HP and 16 HP front panels).

VGA and LCD - Intel 82810
- 3D/2D Window accelerator with LCD flat panel interface
- Video DVD MPEG-II support
- DVI-D interface (PanelLink®) for TFT displays up to 1024 x 768 x 24

CRT Resolution	Intel 82810
1024 x 768	16M @ 85 Hz
1280 x 1024	16M @ 85 Hz
1600 x 1200	256 @ 75 Hz

Floppy Drive
- Internal 3.5-in. floppy drive, 1.44 MB and 720 KB (with 16 HP front panel)

Fast Ethernet - AMD 79C973A
- 10/100Mb/s Ethernet Controller with PCI local bus DMA
- 12 KB FIFOs for Transmit and Receive
- 10BaseT and 100BaseTX auto-negotiation

EIDE Interface
- Ultra DMA/66 sync. DMA mode up to 66 Mb/s
- PIO Mode 4 and bus master IDE up to 16 Mb/s
- Two devices supported through EIDE connector

Serial I/O Interface - RS-232/RS-422
- Two asynchronous 16550-compatible full-duplex channels
- High-speed data transfers up to 115.2Kbaud with 16-byte FIFOs
- RS-232 or RS-422 (COM1 only) with opto-isolation

Parallel Port
- Bi-directional, IEEE 1284-compatible enhanced parallel port (including EPP and ECP) for printer or general-purpose I/O

USB Port
- Two universal serial bus channels

Keyboard and Mouse Port
- PS/2 compatible

Real-time clock
- RTC 146818-compatible, on-board Li-battery

CMOS RAM
- 114 bytes non-volatile CMOS RAM

Watchdog
- Software controlled reset

Temperature Sensor
- Local and remote temperature (CPU case)
- Software readable from –65° C to +127° C, 10° increments

LED
- Front-panel LED (red) user programmable

Hot Swap
- PICMG 2.1-compliant
- Other non-system board insertion and extraction permitted on live system
- Interrupt on backplane/ENUM# signal

BIOS
- AMI BIOS, 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 and keyboard

Mechanical
- 3U 1-slot (100 x 160 x 20.32 mm) with 4 HP front panel
- 3U 2-slot (100 x 160 x 40.64 mm) with 8 HP front panel
- 3U 3-slot (100 x 160 x 60.96 mm) with 12 HP front panel
- 3U 4-slot (100 x 160 x 81.28 mm) with 16 HP front panel

NOTE: CL7 at backplanes with right-justified system slot occupies one cPCI slot only.

Power Requirements
- +5 V, +3.3 V—required
- ±12 V—not required

Front and On-Board I/O with Standard Front Panel (8 HP)

Function	Front I/O	On-Board I/O	Optional Rear I/O
10/100BaseTx	RJ-45	-	No
Keybrd/Mse	Mini-DIN	-	Yes
USB (2x)	USB (2x)	-	Yes
Reset	Button	-	Yes
LED	LED	-	Yes
VGA	HD-15	-	Yes
EIDE Primary	-	44-pin, 2.0 mm2	No
Floppy	-	26-pin, 1.25 mm	No
COM1	D-09 (1x)1	10-pin (2x)	Yes
LCD	DVI-D1	-	No
COM2	D-09 (1x)	10-pin (2x)	Yes
LPT1	-	26-pin	No
Speaker	-	2-pin	Yes

1. COM1 not available on front panel with LCD piggy option.
2. Primary EIDE connector not available when on-board flash disk is used.

Front and On-Board I/O with Standard Front Panel (4 HP)

Function	Front I/O	On-Board I/O	Optional Rear I/O
10/100BaseTx	RJ-45	-	No
Keybrd/Mse	Mini-DIN	-	Yes
USB (2x)	USB (2x)	-	Yes
Reset	Button	-	Yes
LED	LED	-	Yes
VGA	HD-15	-	Yes
EIDE Primary	-	44-pin, 2.0mm1	No
Floppy	-	-	No
COM1	-	-	Yes
COM2	-	-	Yes
Speaker	-	-	Yes

1. Primary EIDE connector not available when on-board flash disk is used.

Additional Front I/O Connectors with other Front Panels

Function	12 HP	16 HP
COM1	D-09 (1x)	D-09 (1x)
LPT1	D-25 (1x)	D-25 (1x)
CAN	-	D-09 (1x)1
Floppy1	-	Yes
2.5 in. HDD2	Yes	Yes

1. Floppy connector not available with on-board floppy drive.
2. Primary EIDE connector not available with on-board 2.5 in. hard disk flash drive only available with 8 HP front panel.

Power Consumption

Values in following table assume +5 V supply with 128 MB of system memory, w/o keyboard, hard disk, or other modules.

CPU	Frequency	Idle*		Operating**	
		5.0V	3.3V	5.0V	3.3V
Celeron	566 MHz	0.8 A	1.5 A	2.9 A	1.5 A
Mob. Pentium. III	700 MHz	0.7 A	1.5 A	2.1 A	1.5 A
Pentium III	700 MHz	0.8 A	1.5 A	3.7 A	1.5 A
Pentium III	850 MHz	0.9 A	1.5 A	4.4 A	1.5 A
Pentium III	1 GHz	1.2 A	1.5 A	5.0 A	1.5 A

* Idle measured at DOS Prompt, max. power saving.
** Operating measured at DOS prompt, no power saving.

Temperature - 4 HP

The highest allowable operating temperature depends on processor type, speed, and ambient conditions (airflow) as shown in table below. All values are under typical conditions.

	Operating	Storage[3]
Standard1	0° C to +65° C	-40° C to +85° C
Extended2	-40° C to +65° C	-40° C to +85° C

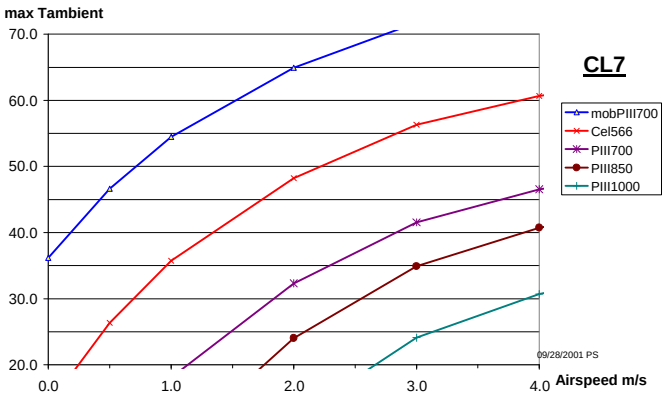
1. 0° C to +50° C with rotating mass storage.
2. Extended not available with rotating mass storage.
3. -40° C to +65° C with rotating mass storage.

Temperature (8, 12, 16 HP)

The highest allowable operating temperature depends on processor type, speed, and ambient conditions (airflow) as shown in table below. All values are under typical conditions.

	Operating	Storage[3]
Standard1	0° C to +70° C	-40° C to +85° C
Extended2	-40° C to +70° C	-40° C to +85° C

1. 0° C to +50° C with rotating mass storage.
2. Extended not available with rotating mass storage.
3. -40° C to +65° C with rotating mass storage.



	Operating	Storage
Humidity	5–95% @ 40° C	5–95% @ 40° C
Altitude	15,000 ft. (4.5 Km)	40,000 ft. (12 Km)

MTBF

- Calculations are available in accordance with MIL-HDBK-217

Please contact SBS Technologies for latest data.

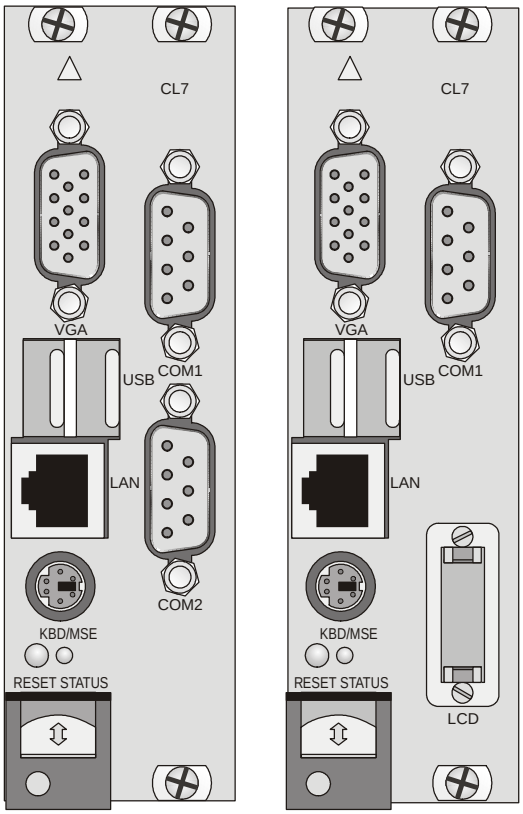
Safety

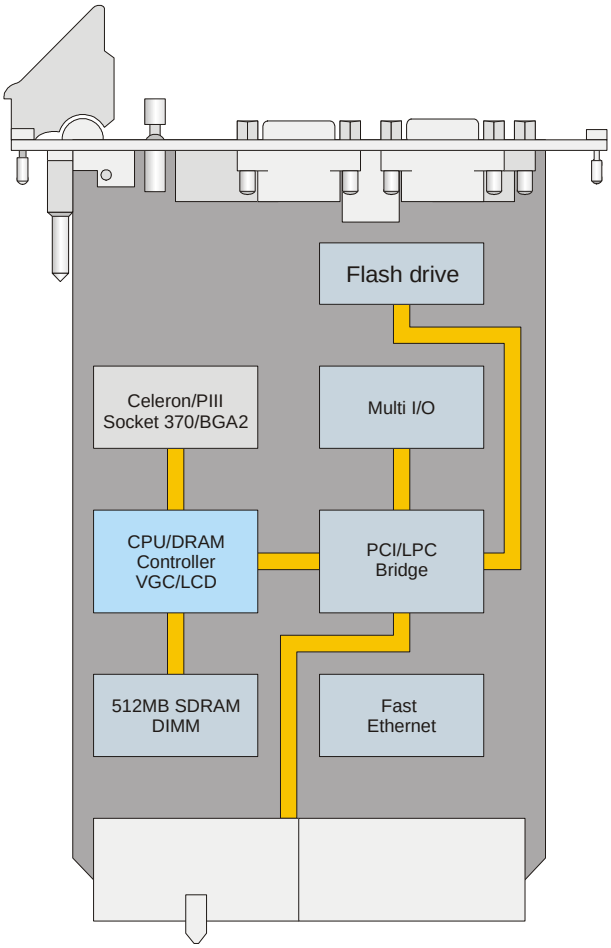
- All PWBs are manufactured with flammability rating of 94-0 V by UL recognized manufacturers.



CL7

Block Diagram





Ordering Information

Hardware Accessories

SC304F	Floppy disk 3.5 in., 19 in. box: 3U/4 HP, cable
SC306HI10G0	IDE hard disk 3.5 in., >10 GB, 19 in. box: 3U/6 HP, w/cable
ZKAAPS2SPLIT	Cable for keyboard and mouse on front panel

Operating Systems

WIN-XPEC	Windows XP operating system
VXW2-BCL7	VxWorks board support package Tornado 2
WIN-EXPBE	Windows XP Embedded

Chassis

SCC484TC08CL7 Starter Cage: 19 in., 4U, 84HP card cage, 8x 3U cPCI slots (3U, right); 3 fans, 250 W power supply: +3.3 V/12 V, +5 V/22 A, +12 V/7 A, 5 V/0.3 A, -12 V/0.8 A, EMC, CD-ROM, 3.5 in. floppy drive, >10 GB IDE hard disk, 0° C/+50° C

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