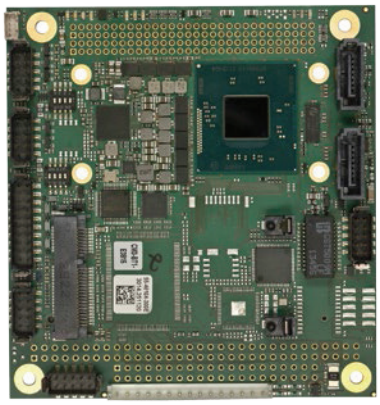
CM3-BT4

Extreme Rugged™, PCI-104 Single Board Computer with Intel® Atom™ Processor System-on-Chip

NEW



EXTREME RUGGED

Features

- Quad-core Intel® Atom™ Processor System-on-Chip
- Up to 4GB DDR3L at 1333MHz
- Supports VGA and LVDS
- GbE (optional 2x GbE)
- 1x SATA 3Gb/s (optional 2x SATA), 1x USB 3.0 + 2x USB 2.0, 8x GPIO
- Extreme Rugged™ operating temperature: -40°C to +85°C
- Supports Smart Embedded Management Agent (SEMA) functions

Specifications

Core System

CPU	Quad-core Intel® Atom™ Processor System-on-Chip
	Atom™ E3845 (4C), 1.91 GHz, 542/792 (Turbo), 10W
	Supports : single, dual or quad Out-of-Order Execution (OOE) processor cores, Intel® VT-x, Intel® SSE4.1 and SSE4.2, Intel® 64 architecture, IA 32-bit, PCLMULQDQ Instruction DRNG, Intel® Thermal Monitor (TM1 & TM2)
	Note: Availability of features may vary between processor SKUs.
Memory	Up to 4GB DDR3L-1066/1333 MHz DDR3L SO-DIMM
Embedded BIOS	AMI EFI with CMOS backup in 8MB SPI BIOS
Cache	Primary 32 KiB, 8-way L1 instruction cache and 24 KiB, 6-way L1 write-back data cache
Expansion Busses	Ordering options for PCI-104 (PCI)
SEMA Board Controller	Supports: Voltage/Current monitoring, Power Sequence debug support, AT/ATX mode control, Logistics and Forensic information, Flat Panel Control, General Purpose I²C, Failsafe BIOS (dual BIOS), Watchdog Timer and Fan Control
Debug Headers	40-pin multipurpose flat cable connector
	Note: Use in combination with DB-40 debug module providing BIOS POST code LED, BMC access, SPI BIOS flashing, Power Testpoints, Debug LEDs

Video

GPU Feature Support	7th generation Intel® graphics core architecture with four execution units
	Supporting two independent displays
	3D graphics hardware acceleration
	Support for DirectX 11, OCL 1.1, OGL ES Halt/2.0/1.1, OGL 3.2
	Video decode hardware acceleration including support for H.264, MPEG2, MVC, VC-1, WMV9 and VP8 formats
	Video encode hardware acceleration including support for H.264, MPEG2 and MVC formats
LVDS	Single/dual channel 18/24-bit LVDS from eDP
VGA	Yes

Audio

Chipset	Intel® HD Audio integrated in SOC
Audio Codec	ALC886

Ethernet

Intel® MAC/PHY	1x Intel® i210 (MAC/PHY) Ehternet controller (optional 2x GbE)
Interface	10/100/1000 GbE connection

I/O Interfaces

USB	3x USB 2.0 (1x on mSATA) + 1x USB 3.0
SATA	1x SATA 3Gb/s shared with mSATA (optional 2nd SATA 3GB/s port w/o mSATA support)
eMMC	Optional soldered, bootable eMMC flash storage 8 GB
GPIO	8x
Serial	2x RS-232/485 (with full handshake)
	Optional: 2x RS-232/485 (with full handshake) + 2x RS-232/485 (TX,RX,CTS,RTS only)

LPC

LPC UART NCT5104D (Nuvoton)

Power

Standard Input	ATX = 5V±5% / 5Vsb ±5%
	AT = 5V±5%
Management	ACPI 5.0 compliant
Power States	C1-C6, S0, S3, S4, S5 (Wake on USB S3/S4, Wake on LAN S3/S4/S5)
ECO mode	Supports deep S5 (ECO mode) for power saving

Mechanical and Environmental

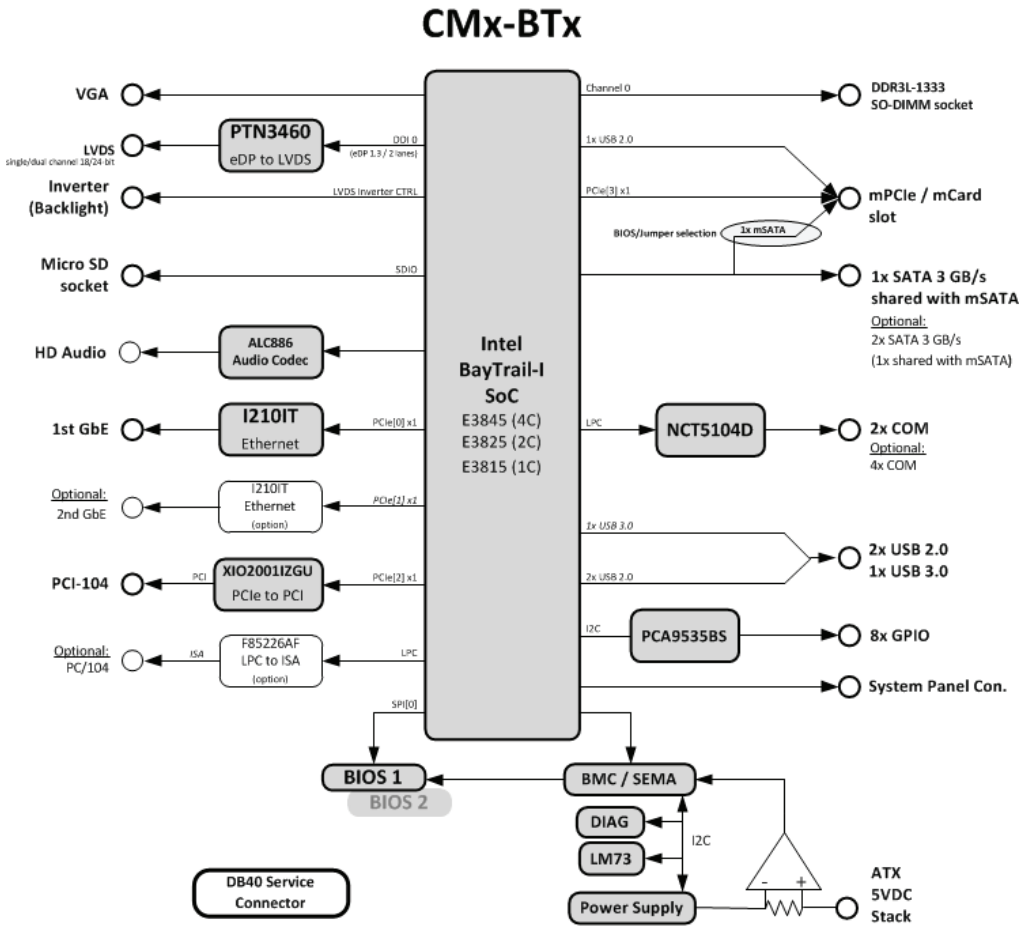
Form Factor	PCI-104 Version 2.3
Dimension	90 mm x 96 mm
Operating Temperature	Standard: 0°C to +60°C
	Extreme Rugged™: -40°C to +85°C
Humidity	5-90% RH operating, non-condensing
	5-95% RH storage (and operating with conformal coating)
Shock and Vibration	IEC 60068-2-64 and IEC-60068-2-27
	MIL-STD-202F, Method 213B, Table 213-I, Condition A and Method 214A, Table 214-I, Condition D
HALT	Thermal Stress, Vibration Stress, Thermal Shock and Combined Test

Operating Systems

Standard Support	Windows 7/8 32/64-bit, Linux 32/64-bit
Extended Support (BSP)	WES7/8, WEC7, Linux, QNX, VxWorks

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Functional Diagram



Ordering Information

Modules

Model Number	Description/Configuration
CM3-BT4-E3845	PCI-104, Atom E3845 (4C), 1.91 GHz, incl. heat spreader, Standard operating temperature: 0°C to +60°C

Accessories

Model Number	Description/Configuration
tbd	ETT screening -40°C to +85°C
CMx-BTx-X-10	CMx-BTx cable kit
CMx-BTx-TM-10	Passive low profile heatsink for CMx-BTx
CMx-BTx-TM-20	Active low profile heatsink for CMx-BTx (with fan)
DDR3L memory	Verified 2GB, 4GB DDR3L SODIMM memory available

CMx-BTx Standard Variant Comparison

Model Number	CM1-BT1-E3815		CM2-BT2-E3825		CM3-BT4-E3845		CM3-BT1-E3815	
Form factor	PC/104		PC/104-Plus		PCI-104		PCI-104	
PCI Bus (PCI-104)	No		Yes		Yes		Yes	
ISA Bus (PC/104)	Yes		Yes		No		No	
CPU	E3815		E3825		E3845		E3815	
CPU cores	1		2		4		1	
VGA	1x		1x		1x		1x	
LVDS	1x		1x		1x		1x	
	config 1	config 2	config 1	config 2	config 1	config 2	config 1	config 2
SATA	2	1	2	1	2	1	1	0
mSATA	0	1	0	1	0	1	0	1
mPCIe	1	0	1	0	1	0	1	0
MicroSD card slot	1x		1x		1x		0x	
GbE	2x		2x		2x		1x	
COM	4x		4x		4x		2x	
GPIO	8x		8x		8x		8x	
HD Audio	1x		1x		1x		1x	
USB 2.0	3x		3x		3x		3x	
USB 3.0	1x		1x		1x		1x	

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Note: All specifications are subject to change without further notice.