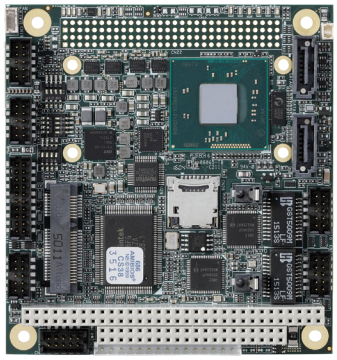
CM1-BT1

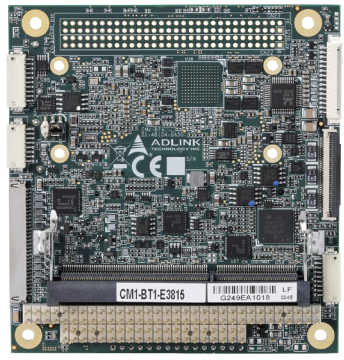
Extreme Rugged™ PC/104 Single Board Computer with Intel Atom® Processor System-on-Chip

Features

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

PC104





Specifications

Core System

CPU

Single-core Intel Atom® Processor SoC Atom® E3815 (1C), 1.46 GHz, 400/- (No Turbo), 5W

Supports: single, 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

PC/104 (ISA)

SEMA Board Controller

Supports: Voltage/Current monitoring, Power Sequencing, Logistics and Forensic

Information, Flat Panel Control, I²C Bus Control, GPIO Control, User Flash, 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 acces, SPI BIOS flashing, Power Testpoints, Debug LEDs

Audio

Chipset

Intel® HD Audio integrated in SoC

Audio Codec

ALC888

Ethernet

Intel® MAC/PHY

2x Intel® i210 (MAC/PHY) Ehternet controller

Interface

10/100/1000 GbE connection

LPC

LPC

LPC UART NCT5104D (Nuvoton)

Video

GPU Feature Support

7th generation Intel® graphics core architecture with four execution units

Supports two independent displays 3D graphics hardware acceleration

Supports 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

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Specifications

I/O Interfaces

USB
3x USB 2.0 (1x on mSATA)

SATA
1x SATA 3Gb/s shared with mSATA (optional 2nd SATA 3GB/s port w/o mSATA support)

GPIO
8x

Serial
2x RS-232/422 (with full handshake) + 2x RS-232/422 (TX,RX,CTS,RTS only)

Power

Standard Input
ATX = 5V±5% / 5Vsb ±5% or 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 for power saving

Operation System

Standard Support
Windows 7/8 32/64-bit, Linux 32/64-bit

Extended Support (BSP)
WES7/8, WEC7, Linux, QNX, VxWorks

Mechanical and Environmental

Form Factor
PC/104 Version 2.6

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)

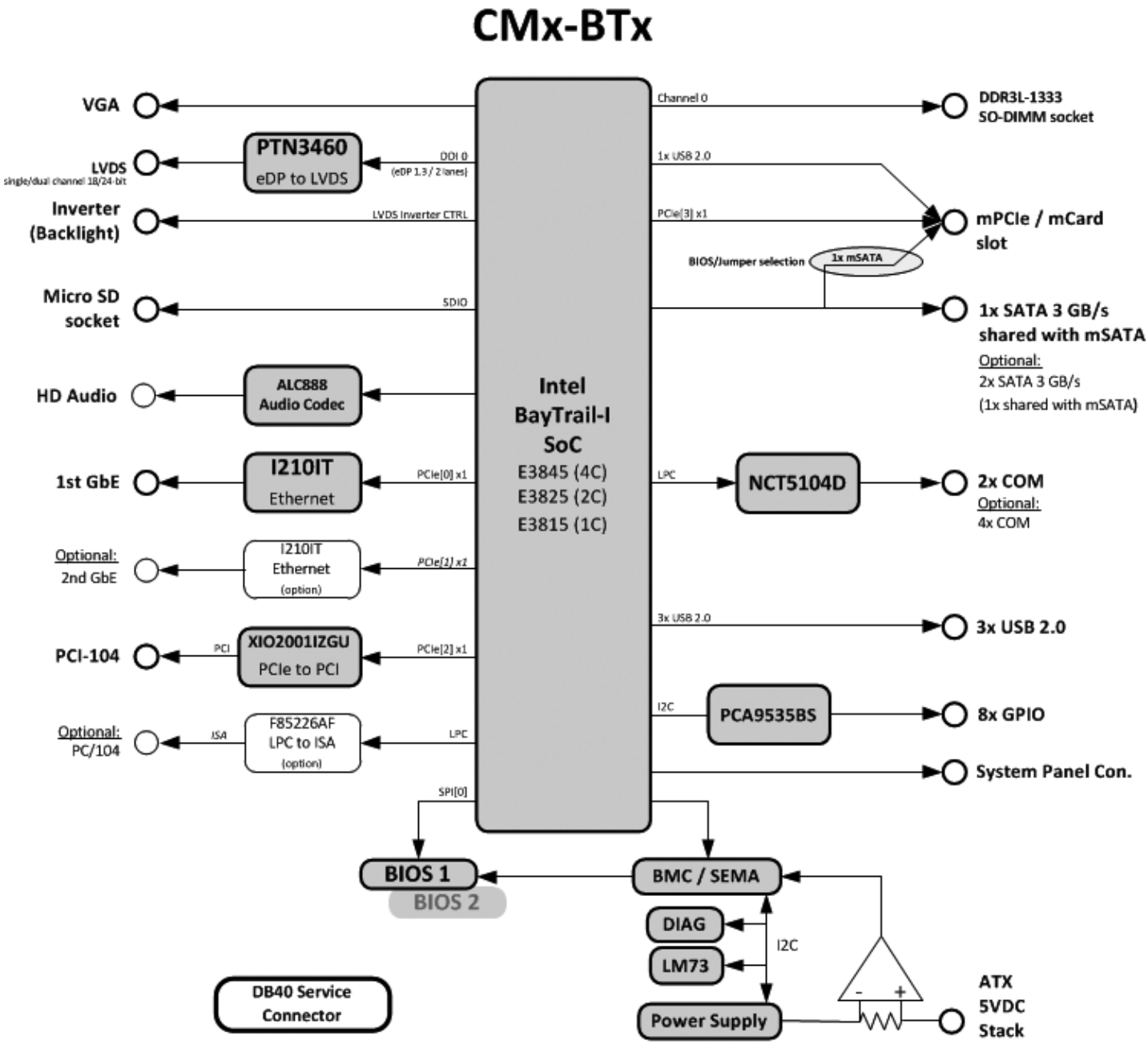
Shock and Vibration
IEC 60068-2-64 and IEC-60068-2-27
MIL-STD-202F, Method 213B, Table 213-I, Condition A and Method 214A, Table 214-I, Condition D

HALT
Thermal Stress, Vibration Stress, Thermal Shock and Combined

Intelligent Middleware

SEMA®
Local management, control of embedded computer systems
Extended EAPI for monitoring, controlling and analytics applications
Multiple OS support and across platforms (x86, ARM)

Functional Diagram



CM1-BT1

Ordering Information

- **CM1-BT1-E3815**
  PC/104, Atom E3815, 1.46 GHz, single-core, incl. heat spreader, standard operating temperature: 0°C to +60°C
- **CM1-BT1-E3815/ETT**
  PC/104, Atom E3815, 1.46 GHz, single-core, incl. heat spreader, extended operating temperature: -40°C to +85°C (screening)
- **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

  *other configurations by request

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	

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