cExpress-BT

COM Express® Compact Size Type 6 Module with Intel Atom® E3800 series or Celeron® Processor SoC

Features

- Single, dual, quad-core Intel Atom® or Celeron® Processor SoC
- Up to 8GB Dual Channel DDR3L at 1333MHz
- VGA and two DDI channels (build option LVDS)
- Three PCIe x1, GbE
- Two SATA 3Gb/s, one USB 3.0, seven USB 2.0
- Supports Smart Embedded Management Agent (SEMA®) functions
- Extreme Rugged operating temperature: -40°C to +85°C (build option)



Specifications

Core System

CPU

Single, dual, quad-core Intel Atom® or Celeron® Processor

Atom® E3845 1.91 GHz 542/792 (Turbo) 10W (4C/1333)
Atom® E3827 1.75 GHz 542/792 (Turbo) 8W (2C/1333)
Atom® E3826 1.46 GHz 533/667 (Turbo) 7W (2C/1066)
Atom® E3825 1.33 GHz 533 (No Turbo) 6W (2C/1066)
Atom® E3815 1.46 GHz 400 (No Turbo) 5W (1C/1066)
Atom® E3805 1.33 GHz (No GFX) 3W (2C/1066)
Celeron® N2930 1.83/2.16 (Burst) GHz, 313/854 (Turbo) 7.5W (4C/1333)
Celeron® J1900 2.0/2.42 (Burst) GHz, 688/854 (Turbo) 10W (4C/1333)

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

Dual channel non-ECC 1333/1066 MHz DDR3L memory up to 8GB in dual stacked SODIMM sockets

Embedded BIOS

AMI EFI with CMOS backup in 8MB SPI BIOS

Cache

Primary 32 KB, 8-way L1 instruction cache and 24 KB, 6-way L1 write-back data cache

2MB for E3845, N2930 and J1900

1MB for E3827, E3826, E3825 and E3805

512K for E3815

Expansion Busses

3 PCI Express x1 Gen2 (AB): lanes 0/1/2; build option PCIe x4 (lose GbE)

LPC bus, SMBus (system), I2C (user)

SEMA Board Controller

Supports: Voltage/Current monitoring, Power sequence debug support, AT/ATX mode control, Logistics and Forensic information, Flat Panel Control, General Purpose I^2C, Failsafe BIOS (dual BIOS), Watchdog Timer and Fan Control

Debug Headers

40-pin multipurpose flat cable connector
Use in combination with DB-40 debug module
providing BIOS POST code LED, BMC access, SPI BIOS flashing, Power test points, Debug LEDs

26-pin XDP header for ICE debug of CPU/chipset

Video

GPU Feature Support

7th generation Intel® graphics core architecture with four execution units supporting two independent displays

3D graphics hardware acceleration

Supports 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

Digital Display Interface

DDI1 supporting DisplayPort/HDMI/DVI (build option dual channel 18/24-bit LVDS support)

DDI2 supporting DisplayPort/HDMI/DVI

VGA

Analog VGA supporting resolutions of up to 2560 x 1600 x 24bpp @60

Audio

Chipset

Intel® HD Audio integrated in SoC

Audio Codec

Located on carrier Express-BASE6

Ethernet

Intel® MAC/PHY: Intel® i210LM (MAC/PHY) Ethernet controller

Interface: 10/100/1000 GbE connection

Note: "build option" indicates an alternative BOM configuration to support additional or alternative functions that are not available on the standard product. Be aware that these "build option" part numbers will need to be newly created and this will result in production lead times.

Specifications

I/O Interfaces

USB: 1x USB 3.0 (USB 0)
6x USB 1.1/2.0 (USB 1/2/3/4/5/6, ports 3-6 from USB hub)
SATA: Two SATA 3 Gb/s ports
Serial: 2 UART ports COM 0/1 (COM 0 support console redirection)
eMMC: Build option soldered on module bootable eMMC flash storage
8 to 32 GB
SDIO: On module mini SD card socket, eMMC feature may vary between OS
GPIO: 4 GPO and 4 GPI

Super I/O

On carrier if needed (standard support for W83627DHG-P)

TPM

Chipset: Atmel AT97SC3204 (build option)
Type: TPM 1.2

Power

Standard Input: ATX = 12V±5% / 5Vsb ±5% or AT = 12V±5%
Wide Input: ATX = 5~20 V / 5Vsb ±5% or AT = 5 ~20V
Management: ACPI 4.0 compliant, Smart Battery support
Power States: C0, C1, C1E, C4, C6
S0, S3, S4, S5 (Wake on USB S3 for port 0~7/S4 for port 0~3, WOL S3/S4/S5
ECO mode: Wake on USB S3/S4, WOL S3/S4/S5

Mechanical and Environmental

Specification: PICMG COM.0: Rev 2.1 Type 6
Form Factor: Compact size: 95 mm x 95 mm

Operating Temperature

Standard: 0°C to +60°C
Extreme Rugged™: -40°C to +85°C (build option, Atom™ E38xx series only)

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

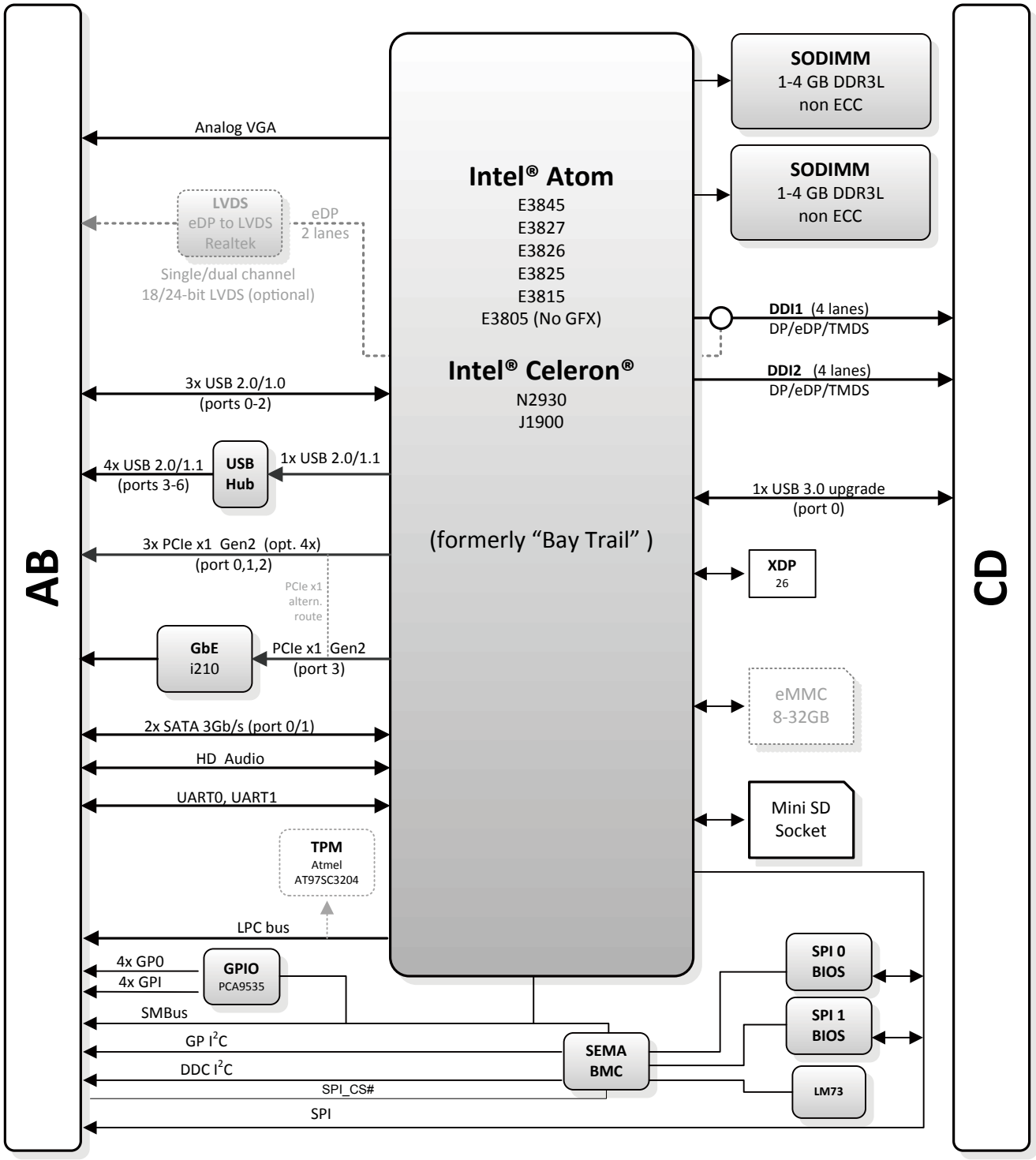
Windows 7/8 32/64-bit, Linux 32/64-bit

Extended Support (BSP)

WES7/8, Linux, VxWorks 32/64-bit WEC7 32-bit

Note: "Build option" indicates an alternative BOM configuration to support additional or alternative functions that are not available on the standard product. Be aware that part numbers for SKUs with "build options" will need to be created and may cause production lead times.

Functional Diagram



Ordering Information

- **cExpress-BT-E3845**
  Compact COM Express® Type 6 Module with Intel Atom® E3845 at 1.91 GHz
- **cExpress-BT-E3827**
  Compact COM Express® Type 6 Module with Intel Atom® E3827 at 1.75 GHz
- **cExpress-BT-E3826**
  Compact COM Express® Type 6 Module with Intel Atom® E3826 at 1.46 GHz
- **cExpress-BT-E3825**
  Compact COM Express® Type 6 Module with Intel Atom® E3825 at 1.33 GHz
- **cExpress-BT-E3815**
  Compact COM Express® Type 6 Module with Intel Atom® E3815 at 1.46 GHz
- **cExpress-BT-E3805**
  Compact COM Express Type6 Module with Intel Atom® E3805 at 1.33 GHz
- **cExpress-BT-J1900**
  Compact COM Express® Type 6 Module with Intel® Celeron® J1900 at 2.00 GHz
- **cExpress-BT-N2930**
  Compact COM Express® Type 6 Module with Intel® Celeron® N2930 at 1.83 GHz

Accessories

Heat Spreaders

- **HTS-cBT-B**
  Heatspreader for cExpress-BT with threaded standoffs for bottom mounting
- **HTS-cBT-BT**
  Heatspreader for cExpress-BT with through hole standoffs for top mounting

Passive Heatsinks

- **THS-cBT-B**
  Low profile heatsink for cExpress-BT with threaded standoffs for bottom mounting
- **THSH-cBT-B**
  High profile heatsink for cExpress-BT with threaded standoffs for bottom mounting

Active Heatsink

- **THSF-cBT-B**
  High profile heatsink with Fan for cExpress-BT with threaded standoffs for bottom mounting (-40°C to + 85°C build option)

Starter Kit

- **COM Express Type 6 Starter Kit Plus**
  COM Express formfactor starter kit with Express-BASE6 board, power supply, and accessory kit

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