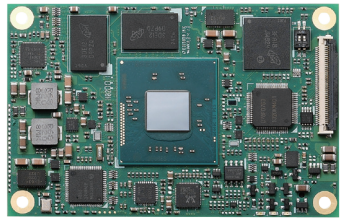
nanoX-BT

Extreme Rugged COM Express® Mini Size Type 10 Module with Intel Atom® E3800 series or Celeron® Processor SoC

Features

- Single, dual, quad-core Intel Atom® or Celeron® Processor SoC
- Up to 4GB soldered Dual Channel DDR3L at 1333MHz
- One DDI channel, one LVDS (build option, eDP)
- Three PCIe x1
- GbE, two SATA 3Gb/s, four USB and one USB client
- 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 quad-core Celeron®

Atom® E3845 1.91 GHz 542/792 Gfx (Turbo) 10W (4C/1333)
Atom® E3827 1.75 GHz 542/792 Gfx (Turbo) 8W (2C/1333)
Atom® E3826 1.46 GHz 533/667 Gfx (Turbo) 7W (2C/1066)
Atom® E3825 1.33 GHz 533 Gfx (No Turbo) 6W (2C/1066)
Atom® E3815 1.46 GHz 400 Gfx (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

Single channel non-ECC 1333/1066 MHz soldered DDR3L memory up to 4GB (2GB or 4GB)

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;
optional 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 I2C, Watchdog Timer

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

60-pin XDP header for ICE debug of CPU/chipset on break out board

GPU Feature Support

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

3D graphics hardware acceleration

Supports for DirectX11, 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

One DDI channel supporting DisplayPort/HDMI/DVI

LVDS/eDP

Single channel 18/24-bit LVDS
(BOM option support for 24-bit EDID panel)

eDP support (build option)

Audio

Chipset

Intel® HD Audio integrated in SOC

Audio Codec

Located on carrier miniBASE-10R

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 part numbers for SKUs with "build options" will need to be created and may cause production lead times.

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Specifications

I/O Interfaces

USB: 1x USB 3.0 (USB 0) 3x USB 2.0 (USB 1,2,3) and 1x USB 2.0 client (USB 7)
SATA: Two SATA 3 Gb/s ports
Serial: 2 UART ports COM 0/1 (COM 0 support console redirection)
eMMC: Optional soldered on module bootable eMMC flash storage
8G to 32 GB
SD: Optional, SD support multiplexed over GPIO pins
eMMC and SD functions may vary between OS
GPIO: 4 GPO and 4 GPI

Super I/O

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

Power

Standard Input: ATX = 12V±5% / 5Vsb ±5% or AT = 12V±5%
Wide Input: ATX = 5-14V / 5Vsb (standard temp. only)
AT = 5-14V (standard temp. only)
Management: ACPI 4.0 compliant, Smart Battery support
Power States: C0, C1, C1E, C4, C6
S0, S3, S4, S5 (Wake on USB S3/S4, WOL S3/S4/S5
ECO mode: Supports deep S5 (ECO mode) for power saving

Operating Systems

Standard Support

Windows 7/8 32/64-bit, Windows 10 64-bit, Linux 32/64-bit

Extended Support (BSP)

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

Mechanical and Environmental

Form Factor: PICMG COM.0: Rev 2.1 Type 10
Dimension: Mini size: 84 mm x 55 mm

Operating Temperature

Standard: 0°C to +60°C
Extreme Rugged: -40 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

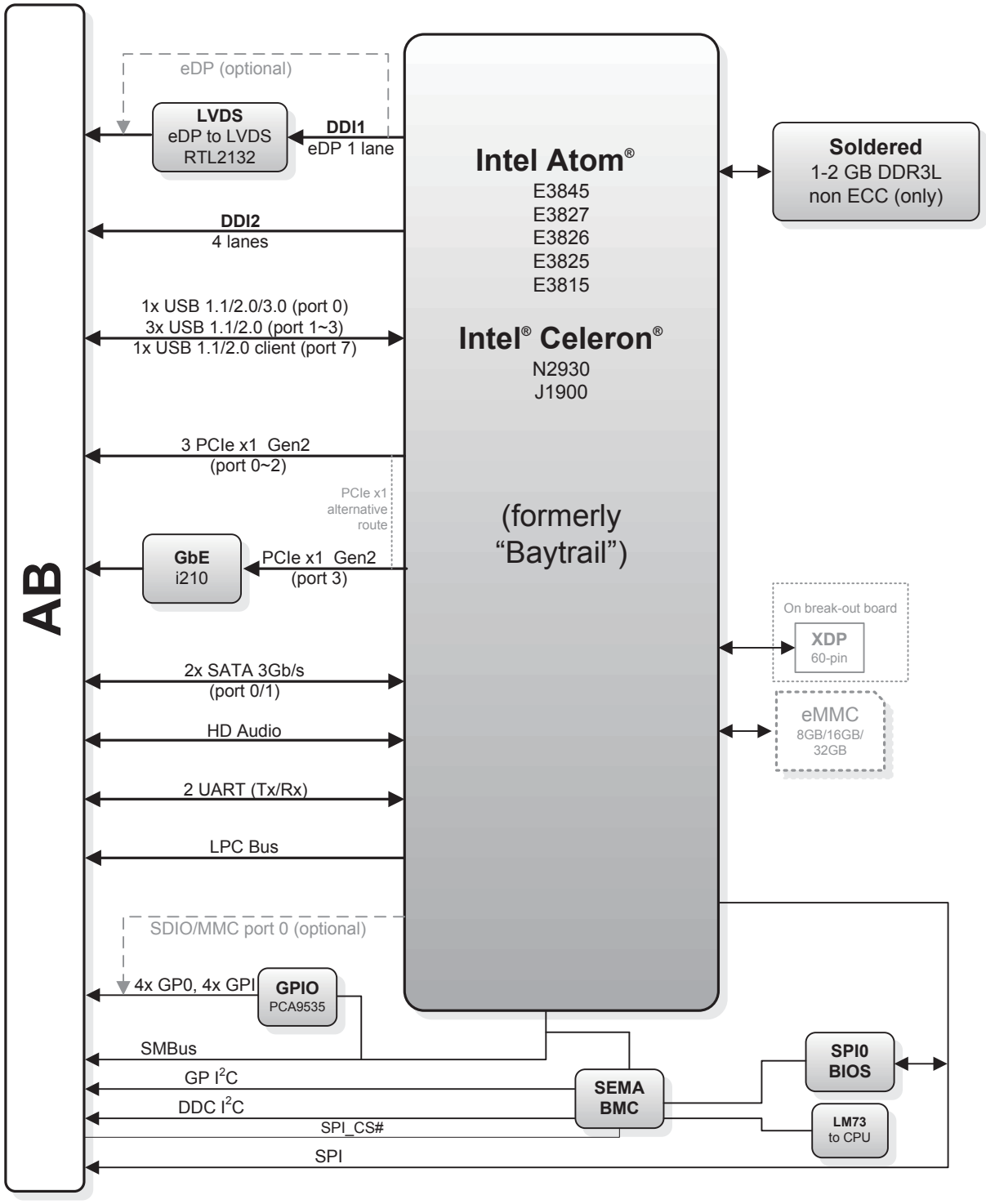
HALT

Thermal Stress, Vibration Stress, Thermal Shock and Combined Test

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Functional Diagram



Ordering Information

- **nanoX-BT-E3845-2G**
  COM Express® Mini Size Type 10 with Intel Atom® E3845 at 1.91 GHz and 2GB non ECC DDR3L
- **nanoX-BT-E3827-2G**
  COM Express® Mini Size Type 10 with Intel Atom® E3827 at 1.75 GHz and 2GB non ECC DDR3L
- **nanoX-BT-E3826-2G**
  COM Express® Mini Size Type 10 with Intel Atom® E3826 at 1.46 GHz and 2GB non ECC DDR3L
- **nanoX-BT-E3825-2G**
  COM Express® Mini Size Type 10 with Intel Atom® E3825 at 1.33 GHz and 2GB non ECC DDR3L
- **nanoX-BT-E3815-2G**
  COM Express® Mini Size Type 10 with Intel Atom® E3815 at 1.46 GHz and 2GB non ECC DDR3L
- **nanoX-BT-E3805-2G**
  COM Express Mini Size Type 10 with Intel Atom® E3805 at 1.33 GHz and 2GB non ECC DDR3L
- **nanoX-BT-N2930-2G**
  COM Express Mini Size Type 10 with Intel® Celeron® N2930 at 1.83 GHz and 2GB non ECC DDR3L
- **nanoX-BT-J1900-2G**
  COM Express® Mini Size Type 10 with Intel® Celeron® J1900 at 2.00 GHz and 2GB non ECC DDR3L

Accessories

Heat Spreaders

- **HTS-nXBT-B**
  Heatspreader for nanoX-BT with threaded standoffs for bottom mounting
- **HTS-nXBT-BT**
  Heatspreader for nanoX-BT with through hole standoffs for top mounting

Passive Heatsinks

- **THS-nXBT-B**
  Low profile heatsink for nanoX-BT with threaded standoffs for bottom mounting
- **THS-nXBT-BT**
  Low profile heatsink for nanoX-BT with through hole standoffs for top mounting
- **THSM-nXBT-B**
  High profile heatsink for nanoX-BT with threaded standoffs for bottom mounting

Starter Kit

- **COM Express Type 10 Starter Kit Plus**
  COM Express formfactor starter kit with miniBase-10R carrier board, power supply, and accessory kit

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