nanoX-TC

COM Express® Mini Size Type 10 Module with Intel® Atom™ E6XX Series Processor

Features

- Intel® Atom™ E6xx Processor
- Up to 2 GB soldered DDR2 SDRAM at 800 MHz
- 24-bit LVDS and SDVO support
- 4x PCI Express x1 lanes
- Build option Intel® Platform Controller Hub EG20T for USB, LAN, SDIO, Serial & CAN bus and SATA

Specifications

● Core System

CPU

Intel® Atom™ E680, 1.6 GHz, 3.9 W TDP
Intel® Atom™ E660, 1.3 GHz, 3.3W TDP
Intel® Atom™ E640, 1.0 GHz, 3.3W TDP
Intel® Atom™ E620, 600 MHz, 2.7W TDP
All processors support Intel® Hyper-Threading and Intel® Virtualization Technology

L2 cache

512 KB on all processors

Memory

Soldered 512 MB, 1 or 2 GB DDR2 at 800 MHz

BIOS

License-free bootloader or AMI UEFI flash

Hardware Monitor

Supply voltages and CPU temperature

Debug Interface

XDP SFF-26 extension for ICE debug

Embedded Features Instant on with Intel Bootloader support, OEM BIOS settings, Board Info & Statistics, ACPI 3.0, Smart Battery Management support, Watchdog with programmable timer ranges

Expansion Busses

4 PCI Express x1 (0/1/2/3, port 3 is used for EG20T PCH build option; no PCIe x4 support)
LPC Bus, SMBus (system) , I2C (user)
4 GPI and 4 GPO (shared with SDIO on optional EG20T)
SPI (supports BIOS only)

● Video

2D/3D Graphic Engine

Integrated in Intel® Atom™ Processor E6xx

Decoding

MPEG2, MPEG4, VC1, WMV9, H.264 and DivX

Encoding

MPEG4, H.264 (baseline at L3)

LVDS Interface

Single channel 18- or 24-bit pixel color depths with maximum resolution of up to 1280x768 @ 60 Hz. Pixel clock rate between 19.75 MHz (minimum) and 80 MHz (maximum)

SDVO

Serial digital video output supporting devices for DVI, TV-out, analog VGA. Maximum resolution of up to 1280x1024 @ 85 Hz and pixel clock rate up to 160 MHz.

● Audio

High Definition Audio

Integrated in Intel® Atom™ Processor E6xx

Characteristics

Multi-channel audio stream, 32-bit sample depth, sample rate up to 192 kHz

Audio Codec

On carrier (standard support for ALC886)

● Ethernet

Serial and CAN: One RS-232 (RX/TX) and one CAN (AX/RX) port (optional 2x RS-232 w/o CAN)
GbE MAC: Integrated in Intel® EG20T PCH
PHY: Realtek RTL8211CL
Speed: 10/100/1000 Mbps

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

Chipset: Integrated in Intel® PCH EG20T

USB: Six USB 2.0 host ports and one USB 2.0 client port

SATA: Two ports supporting SATA 1.5 Gb/s and 3 Gb/s

SDIO Port: SDIO/MMC supporting SDHC speed class 6 (shared with GPIO, selectable in the BIOS setup)

● Power

Input Power: 4.75 V – 21 V wide range, supports AT mode and ATX mode (with additional 5 Vsb)

Power States: Supports S0, S1, S3, S4, S5

Power Consumption: 5W at 5V typical, 3W idle

Smart Battery Support: Yes

● Operating Systems

Standard Support

Windows XP/Windows 7, Linux

Extended Support (BSP)

Embedded XP, WinCE 6.0, Linux, VxWorks 6.x, QNX, AIDI Library

● Mechanical and Environmental

Specification: PICMG COM.0: Rev 2.1 Type 10

Form Factor: Mini size: 84 mm x 55 mm

Operating Temperature

Standard: 0°C to +60°C

Storage Temperature: -20°C to +80°C

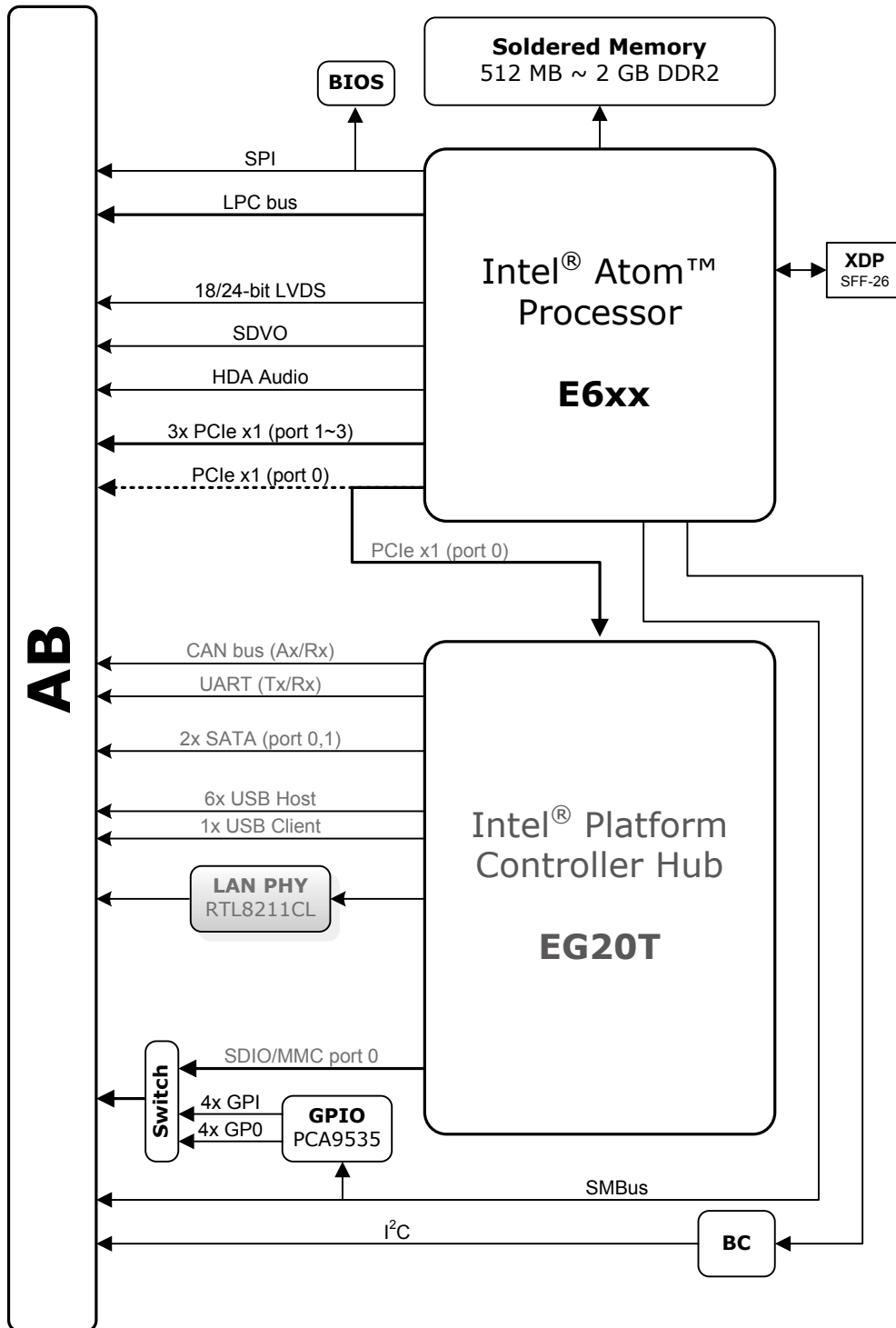### Humidity

90% at +60°C

Shock

15G peak-to-peak, 11ms duration, non-operation

Vibration

Non-operating: 1.88 Grms, 5-500 Hz, each axis

Operating: 0.5 Grms, 5-500 Hz, each axis

Certification: CE, FCC, HALT

Functional Diagram

Block	Connection

BIOS

Soldered Memory
512 MB ~ 2 GB DDR2

Intel® Atom™ Processor

E6xx

XDP
SFF-26

Intel® Platform Controller Hub

EG20T

AB

SPI

LPC bus

18/24-bit LVDS

SDVO

HDA Audio

3x PCIe x1 (port 1~3)

PCIe x1 (port 0)

PCIe x1 (port 0)

CAN bus (Ax/Rx)

UART (Tx/Rx)

2x SATA (port 0,1)

6x USB Host

1x USB Client

LAN PHY
RTL8211CL

SDIO/MMC port 0

Switch

4x GPI

4x GP0

GPIO
PCA9535

SMBus

I^2C

BC

Ordering Information

- **nanoX-TC-E620-1G**
  COM Express® Mini Size Type 10 Module with Intel® Atom™ E620 at 600 MHz, PCH EG20T, and 1 GB soldered DDR2 SDRAM

- **nanoX-TC-E640-1G**
  COM Express® Mini Size Type 10 Module with Intel® Atom™ E640 at 1.0GHz, PCH EG20T, and 1 GB soldered DDR2 SDRAM

- **nanoX-TC-E660-1G**
  COM Express® Mini Size Type 10 Module with Intel® Atom™ E660 at 1.3GHz, PCH EG20T, and 1 GB soldered DDR2 SDRAM

- **nanoX-TC-E680-1G**
  COM Express® Mini Size Type 10 Module with Intel® Atom™ E680 at 1.6GHz, PCH EG20T and 1 GB soldered DDR2 SDRAM

- **nanoX-TC-E680-2G**
  COM Express® Mini Size Type 10 Module with Intel® Atom™ E680 at 1.6GHz, PCH EG20T and 2 GB soldered DDR2 SDRAM

- **nanoX-TC-E660-2G**
  COM Express® Mini Size Type 10 Module with Intel® Atom™ E660 at 1.3GHz, PCH EG20T, and 2 GB soldered DDR2 SDRAM

- **nanoX-TC-E640-2G**
  COM Express® Mini Size Type 10 Module with Intel® Atom™ E640 at 1.0GHz, PCH EG20T, and 2 GB soldered DDR2 SDRAM

- **nanoX-TC-E620-2G**
  COM Express® Mini Size Type 10 Module with Intel® Atom™ E620 at 600 MHz, PCH EG20T, and 2 GB soldered DDR2 SDRAM

Accessories

Heat Spreaders

- **HTS-nXTC-B**
  Heatspreader for nanoX-TC with threaded standoffs for bottom mounting

- **HTS-nXTC-BT**
  Heatspreader for nanoX-TC with through hole standoffs for top mounting

Passive Heatsinks

- **THS-nXTC-B**
  Multidirectional Heatsink for nanoX-TC with threaded standoffs for bottom mounting

- **THS-nXTC-BT**
  Multidirectional Heatsink for nanoX-TC with threaded standoffs for top 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

Mouser Electronics

Authorized Distributor

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