



### Features

- Intel® Atom™ Processor E6xxT from 600 MHz up to 1.6 GHz
- 1-2 GB soldered industrial grade 800MHz DDR2 SDRAM
- 24-bit LVDS and SDVO support
- PCI Express x1 lanes
- Intel® Platform Controller Hub EG20T for USB, LAN, SDIO, Serial & CAN bus and SATA
- Optional Solid State Drive up to 16 GB
- COM Express® COM.0 R2.1 Type 10 Pinout
- 50% Thicker PCB for high vibration environments
- Extreme Rugged™ operating temperature: -40°C to +85°C

### Specifications

#### Core System

CPU	Intel® Atom™ E680T, 1.6 GHz, 3.9 W TDP Intel® Atom™ E660T, 1.3 GHz, 3.3W TDP Intel® Atom™ E620T, 600 MHz, 2.7W TDP All versions support -40°C to +85°C wide operating temperature range All processors support Intel® Hyper-Threading and Intel® Virtualization Technology
L2 cache	512 KB on all processors
Memory	Soldered 1GB DDR2 at 800MHz (optional for 512MB or 2GB)
BIOS	License-free bootloader or AMI UEFI BIOS
Hardware Monitor	Supply voltages and CPU temperature
Debug Interface	XDP SFF-26 extension for ICE debug
Embedded Features	Instant on with Intel Bootloader support, Board Info & Statistics, ACPI 3.0, Smart Battery Management support, Watchdog with programmable timer ranges
Expansion Busses	2 PCI Express x1 available (0/1, port 2 used by GbE, port 3 used for EG20T PCH) LPC Bus, SMBus (system), I <sup>2</sup> C (user) 4 GPI and 4 GPO 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 @ 85Hz 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)

#### I/O Interfaces

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
Solid State Drive (optional)	4GB, 8GB or 16GB capacity; occupies 1 SATA port when populated
Serial and CAN	Two RS-232 (optional one RS-232 (RX/TX) and one CAN (AX/RX) port) Bosch CAN Protocol Version 2.0B Active 1 (standard and extended format)

#### Ethernet

Ethernet	Intel® 82574IT Gigabit Ethernet Controller
Speed	10/100/1000 Mbps

#### 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

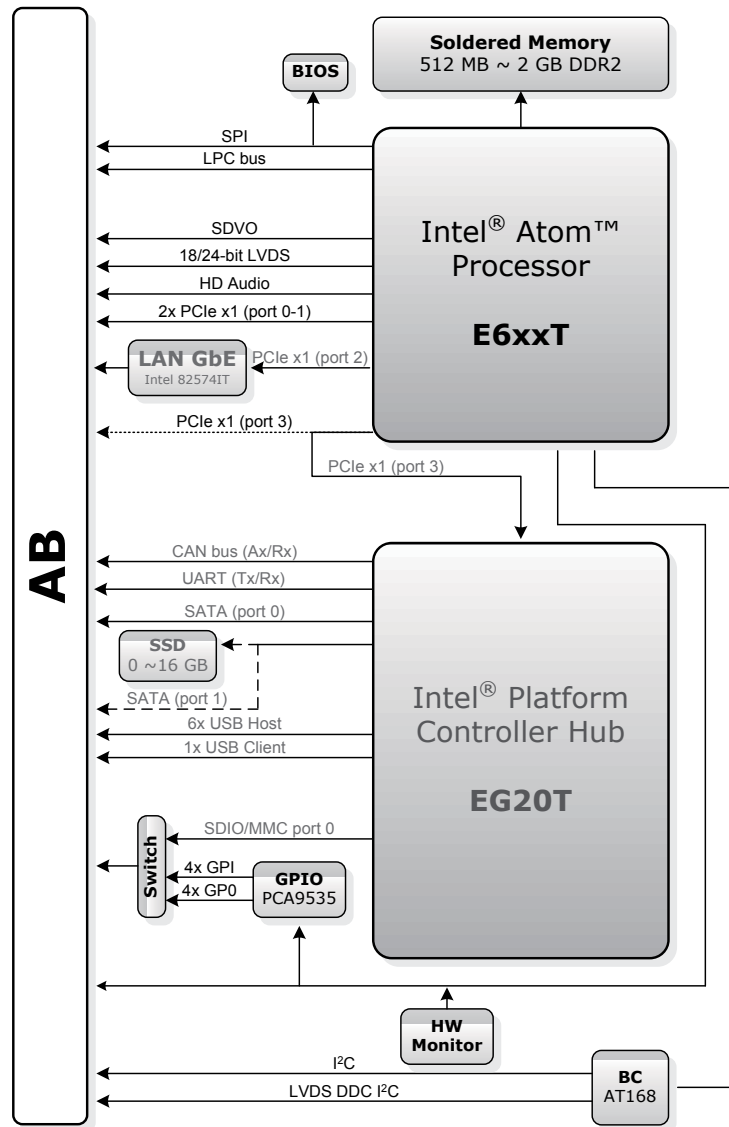
#### Mechanical and Environmental

Specification	PICMG COM.0: Rev 2.1 Type 10
Form Factor	Mini size: 84 mm x 55 mm
Board Thickness	0.093" (2.3mm)
Operating Temperature	Standard: -20°C to +70°C Extreme Rugged™: -40°C to +85°C (optional)
Storage Temperature	-55°C to +85°C
Humidity	90% at +60°C
Shock	50G peak-to-peak, 11ms duration, MIL-STD-202G Method 213B
Vibration	Operating: 11.96 Grms, 50-20,000 Hz, each axis, MIL-STD-202G Method 214A
Compatibility	PICMG COM Express® COM.0 R2.1 Type 10
Certifications	CE, FCC, HALT

#### Operating Systems

Standard Support	Windows XP/Windows 7, Linux
Extended Support (BSP)	Windows XP Embedded, WinCE 6.0, VxWorks 6.x, QNX, AIDI Library

## Functional Diagram



## Ordering Information

### Modules

Model Number	Description
nanoX-TCR-E620T-1G	Extreme Rugged™ nanoX-TCR, Intel® Atom™ E620T 0.6GHz, 1GB DDR2 SDRAM
nanoX-TCR-E640T-1G	Extreme Rugged™ nanoX-TCR, Intel® Atom™ E640T 1.0GHz, 1GB DDR2 SDRAM
nanoX-TCR-E660T-1G	Extreme Rugged™ nanoX-TCR, Intel® Atom™ E660T 1.3GHz, 1GB DDR2 SDRAM
nanoX-TCR-E680T-1G	Extreme Rugged™ nanoX-TCR, Intel® Atom™ E680T 1.6GHz, 1GB DDR2 SDRAM
nanoX-TCR-E680T-1G/4GB	Extreme Rugged™ nanoX-TCR, Intel® Atom™ E680T 1.6GHz, 1GB DDR2 SDRAM, 4GB SSD
nanoX-TCR-E620T-2G	Extreme Rugged™ nanoX-TCR, Intel® Atom™ E620T 0.6GHz, 2GB DDR2 SDRAM
nanoX-TCR-E640T-2G	Extreme Rugged™ nanoX-TCR, Intel® Atom™ E640T 1.0GHz, 2GB DDR2 SDRAM
nanoX-TCR-E680T-2G	Extreme Rugged™ nanoX-TCR, Intel® Atom™ E680T 1.6GHz, 2GB DDR2 SDRAM
nanoX-TCR-E660T-2G	Extreme Rugged™ nanoX-TCR, Intel® Atom™ E660T 1.3GHz, 2GB DDR2 SDRAM

### Accessories

Model Number	Description
<b>Heat Spreaders</b>	
HTS-nXTCR-B	Heatspreader for nanoX-TCR with threaded hole standoffs for bottom mounting
HTS-nXTCR-BTF	Heatspreader for nanoX-TCR with through hole standoffs for top mounting
<b>Passive Heatsink</b>	
THS-nXTCR-B	Heatsink nanoX-TCR with threaded hole standoffs for bottom mounting

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