



### 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<br>Intel® Atom™ E660T, 1.3 GHz, 3.3W TDP<br>Intel® Atom™ E620T, 600 MHz, 2.7W TDP<br>All versions support -40°C to +85°C wide operating temperature range<br>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)<br>LPC Bus, SMBus (system), I²C (user)<br>4 GPI and 4 GPO<br>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<br>(optional one RS-232 (RX/TX) and one CAN (AX/RX) port)<br>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                                                                           |

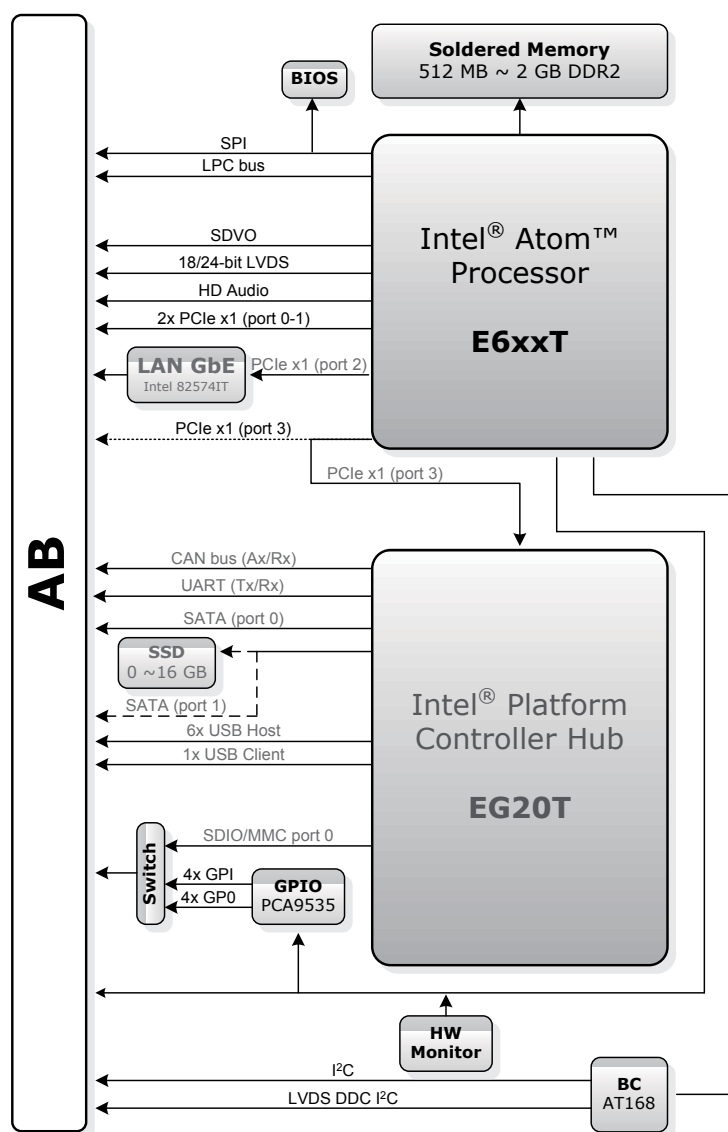
#### Mechanical and Environmental

|                       |                                                                          |
|-----------------------|--------------------------------------------------------------------------|
| 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<br>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, AID Library |

## Functional Diagram



## Ordering Information

### Modules

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



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Электрон  
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