

**NEW**



### Features

- Single, dual, quad-core Intel® Atom™ or Celeron® Processor System-on-Chip (SOC)
- Up to 8GB Dual Channel DDR3L at 1333MHz
- VGA and two DDI channels (optional 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 (optional)

### Specifications

#### Core System

|     |  |
|-----|--|
| CPU | Single, dual, quad-core Intel® Atom™ or Celeron® Processor<br>Atom™ E3845 1.91 GHz 542/792 (Turbo) 10W (4C/1333)<br>Atom™ E3827 1.75 GHz 542/792 (Turbo) 8W (2C/1333)<br>Atom™ E3826 1.46 GHz 533/667 (Turbo) 7W (2C/1066)<br>Atom™ E3825 1.33 GHz 533 (No Turbo) 6W (2C/1066)<br>Atom™ E3815 1.46 GHz 400 (No Turbo) 5W (1C/1066)<br>Celeron® N2930 1.83/2.16 (Burst) GHz, 313/854 (Turbo) 7.5W (4C/1333)<br>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<br>2MB for E3845, N2930 and J1900<br>1MB for E3827, E3826 and E3825<br>512K for E3815  |
| Expansion Busses      | 3 PCI Express x1 Gen2 (AB): lanes 0/1/2; build option PCIe x4 (lose GbE)<br>LPC bus, SMBus (system), I <sup>2</sup> C (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 <sup>2</sup> C, Failsafe BIOS (dual BIOS), Watchdog Timer and Fan Control |
| Debug Headers         | 40-pin multipurpose flat cable connector<br>Use in combination with DB-40 debug module providing BIOS POST code LED, BMC access, SPI BIOS flashing, Power test points, Debug LEDs<br>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<br>3D graphics hardware acceleration<br>Supports DirectX 11, OCL 1.1, OGL ES Halt/2.0/1.1, OGL 3.2<br>Video decode hardware acceleration including support for H.264, MPEG2, MVC, VC-1, WMV9 and VP8 formats<br>Video encode hardware acceleration including support for H.264, MPEG2 and MVC formats |
| Digital Display Interface | DDI1 supporting DisplayPort/ HDMI/ DVI (optional dual channel 18/24-bit LVDS support)<br>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                  |

#### I/O Interfaces

|        |   |
|--------|---|
| USB    | 1x USB 3.0 (USB 0) 3x USB 1.1/2.0 (USB 1,2,3) and 4x USB 2.0 only (USB 4,5,6,7) |
| SATA   | Two SATA 3 Gb/s ports   |
| Serial | 2 UART ports COM1/2 with console redirection                                    |
| eMMC   | Optional soldered on module bootable eMMC flash storage 8 to 64 GB              |
| SDIO   | On module mini SD card socket   |
| GPIO   | 4 GPO and 4 GPI with interrupt  |

#### Super I/O

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

#### TPM

|         |                  |
|---------|------------------|
| Chipset | Ateml AT97SC3204 |
| Type    | TPM 1.2          |

\*TPM is optional

#### 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<br>S0, S3, S4, S5 (Wake on USB S3 for port 0-7/S4 for port 0-3, WOL S3/S4/S5) |
| ECO mode       | Supports deep S5 (ECO mode) for power saving  |

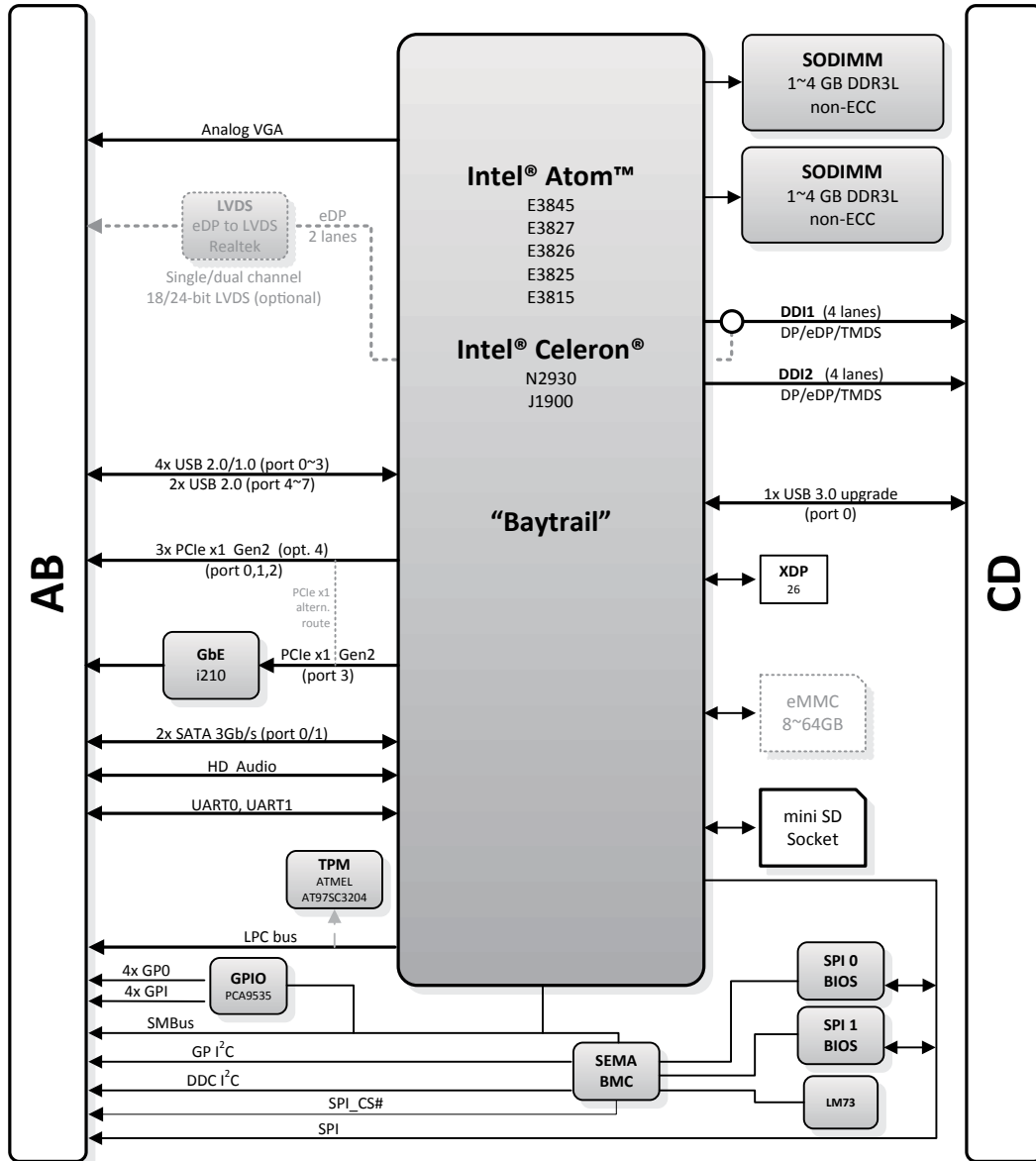
#### Mechanical and Environmental

|                       |  |
|-----------------------|--|
| 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<br>Extreme Rugged™: -40°C to +85°C (optional)   |
| Humidity              | 5-90% RH operating, non-condensing<br>5-95% RH storage (and operating with conformal coating)                                      |
| Shock and Vibration   | IEC 60068-2-64 and IEC 60068-2-27<br>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, WEC7/8, Linux , VxWorks        |

## Functional Diagram



## Ordering Information

### Modules

| Model Number             | Description/Configuration   |
|--------------------------|---|
| <b>cExpress-BT-E3815</b> | Compact COM Express® Type 6 Module with Intel® Atom™ E3815 at 1.46 GHz    |
| <b>cExpress-BT-E3825</b> | Compact COM Express® Type 6 Module with Intel® Atom™ E3825 at 1.33 GHz    |
| <b>cExpress-BT-E3826</b> | Compact COM Express® Type 6 Module with Intel® Atom™ E3826 at 1.46 GHz    |
| <b>cExpress-BT-E3827</b> | Compact COM Express® Type 6 Module with Intel® Atom™ E3827 at 1.75 GHz    |
| <b>cExpress-BT-E3845</b> | Compact COM Express® Type 6 Module with Intel® Atom™ E3845 at 1.91 GHz    |
| <b>cExpress-BT-J1900</b> | Compact COM Express® Type 6 Module with Intel® Celeron® J1900 at 2.00 GHz |
| <b>cExpress-BT-N2930</b> | Compact COM Express® Type 6 Module with Intel® Celeron® N2930 at 1.83 GHz |

### Accessories

| Model Number             | Description/Configuration   |
|--------------------------|---|
| <b>Heat Spreaders</b>    |   |
| 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   |
| <b>Passive Heatsinks</b> |   |
| THS-cBT-B                | Low profile heatsink for cExpress-BT with threaded standoffs for bottom mounting                                      |
| THS-cBT-BT               | Low profile heatsink for cExpress-BT with through hole standoffs for top mounting                                     |
| THSH-cBT-B               | High profile heatsink for cExpress-BT with threaded standoffs for bottom mounting                                     |
| <b>Active Heatsink</b>   |   |
| THSF-cBT-B               | High profile heatsink with Fan for cExpress-BT with threaded standoffs for bottom mounting (-40°C to +85°C operation) |

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