

**NEW**



### Features

- Single, dual, quad-core Intel® Atom™ or Celeron® Processor System-on-Chip
- Up to 8GB Dual Channel DDR3L at 1333MHz
- VGA and dual channel 18/24-bit LVDS
- Two PCIe x1, and 32-bit PCI bus
- GbE, one SATA 3Gb/s, one PATA IDE, 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  
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)  
Celeron® N2930 1.83 GHz, 400/756 Gfx (Turbo) 7.5W (4C/1066)  
Celeron® J1900 2 GHz, 688/792 Gfx (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

2MB for E3845, N2920 and J1900

1MB for E3827, E3826 and E3825

512K for E3815

**Expansion Busses**  
2 PCI Express x1 Gen 2 (AB): lanes 0/1

PCI Bus 33 MHz Rev. 2.3

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  
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

#### Video

**GPU Feature Support**  
7th generation Intel® graphics core architecture with four execution units supporting two independent displays  
3D graphics hardware acceleration

Supports for DirectX 11, OpenCL 1.1, OpenGL ES Haili/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

**VGA**  
Analog VGA supporting resolutions of up to 2560 x 1600 x 24bpp @60

**LVDS**  
Single/dual channel 18/24-bit LVDS from eDP (two lanes)

#### Audio

**Chipset**  
Intel® HD Audio integrated in SOC

**Audio Codec**  
Located on carrier Express-BASE

#### Ethernet

Intel® MAC/PHY Interface	Intel® i210LM (MAC/PHY) Ethernet controller 10/100/1000 GbE connection
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#### I/O Interfaces

USB	7x USB 1.1/2.0 (port 3~6 from USB hub)
SATA	One SATA 3 Gb/s ports (optionally 2 ports: lose PATA)
PATA	Single PATA IDE (Master only) through SATA to PATA IC.
eMMC	Optional soldered on-module bootable eMMC flash storage 8 to 32GB, eMMC feature may vary between OS
GPIO	4 GPO and 4 GPI

#### Super I/O

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

#### TPM

Chipset	Atmel AT97SC3204 (optional)
Type	TPM 1.2

#### 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 S0, S3, S4, S5 (Wake on USB S3/S4, WOL S3/S4/S5)
ECO mode	Supports deep S5 (ECO mode) for power saving

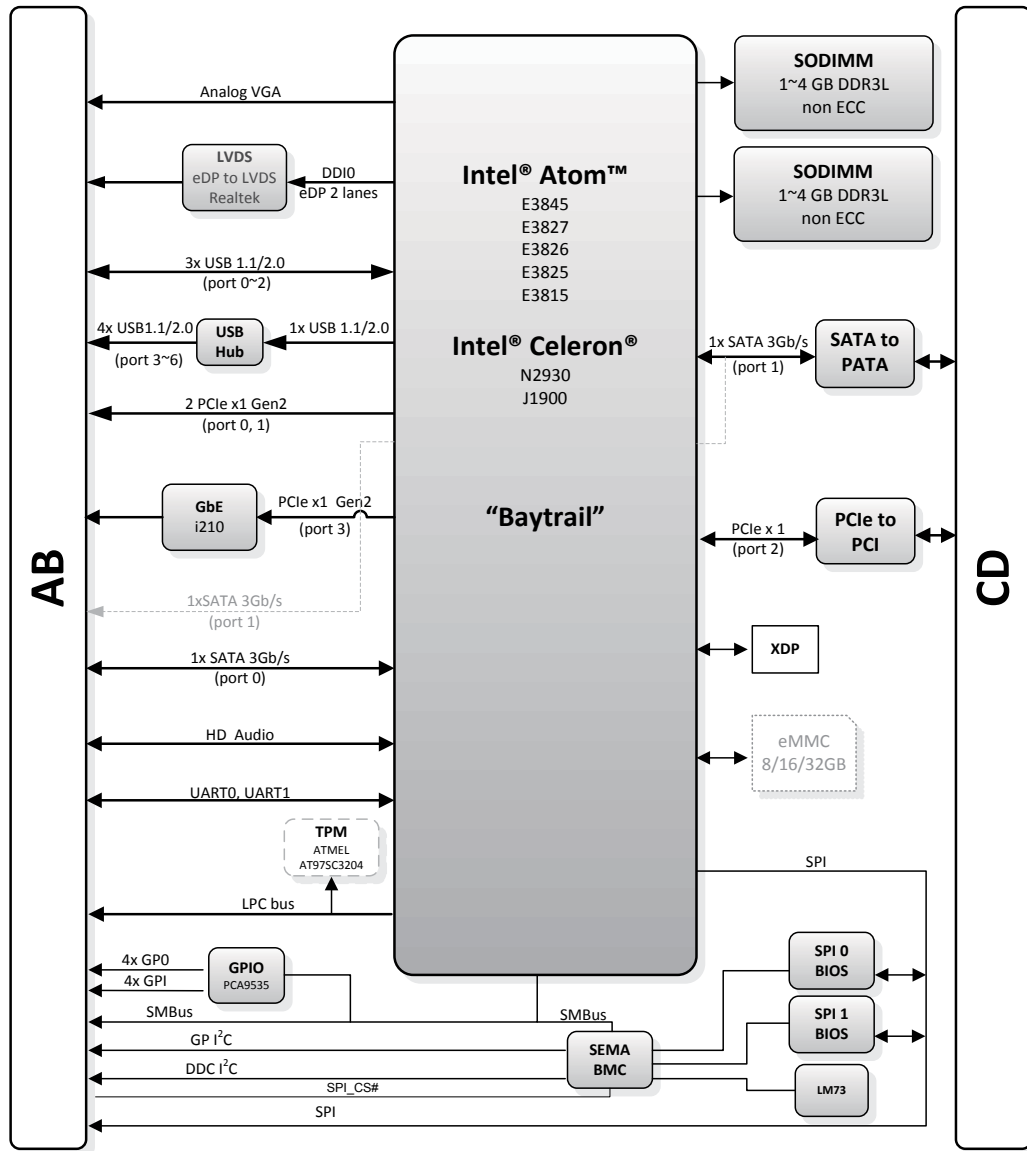
#### Mechanical and Environmental

Specification	PICMG COM.0: Rev 2.1 Type 2
Form Factor	Compact size: 95 mm x 95 mm
Operating Temperature	Standard: 0°C to +60°C Extreme Rugged™: -40°C to +85°C (optional, 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

#### Operating Systems

Standard Support	Windows 7/8 32/64-bit, Linux 32/64-bit
Extended Support (BSP)	WES7/8, Linux, VxWorks 32/64-bit WEC7 32-bit

## Functional Diagram



## Ordering Information

### Modules

Model Number	Description/Configuration
<b>cExpress-BT2-E3845</b>	COM Express® Compact Size Type 2 Module with Intel® Atom™ E3845 at 1.91 GHz
<b>cExpress-BT2-E3827</b>	COM Express® Compact Size Type 2 Module with Intel® Atom™ E3827 at 1.75 GHz
<b>cExpress-BT2-E3826</b>	COM Express® Compact Size Type 2 Module with Intel® Atom™ E3826 at 1.46 GHz
<b>cExpress-BT2-E3825</b>	COM Express® Compact Size Type 2 Module with Intel® Atom™ E3825 at 1.33 GHz
<b>cExpress-BT2-E3815</b>	COM Express® Compact Size Type 2 Module with Intel® Atom™ E3815 at 1.46 GHz
<b>cExpress-BT2-J1900</b>	COM Express® Compact Size Type 2 Module with Intel® Celeron® J1900 at 2.00 GHz
<b>cExpress-BT2-N2930</b>	COM Express® Compact Size Type 2 Module with Intel® Celeron® N2930 at 1.83 GHz

### Accessories

Model Number	Description/Configuration
<b>Heat Spreaders</b>	
HTS-cBT2-B	Heatspreader for cExpress-BT2 with threaded standoffs for bottom mounting
HTS-cBT2-BT	Heatspreader for cExpress-BT2 with through hole standoffs for top mounting
<b>Passive Heatsinks</b>	
THS-cBT2-B	Low profile heatsink for cExpress-BT2 with threaded standoffs for bottom mounting
THSH-cBT2-B	High profile heatsink for cExpress-BT2 with threaded standoffs for bottom mounting
<b>Active Heatsink</b>	
THSF-cBT2-B	High profile heatsink with Fan for cExpress-BT2 with threaded standoffs for bottom mounting
<b>Starter Kit</b>	
Type 2 Starter Kit Plus	Start kit for cExpress-BT2