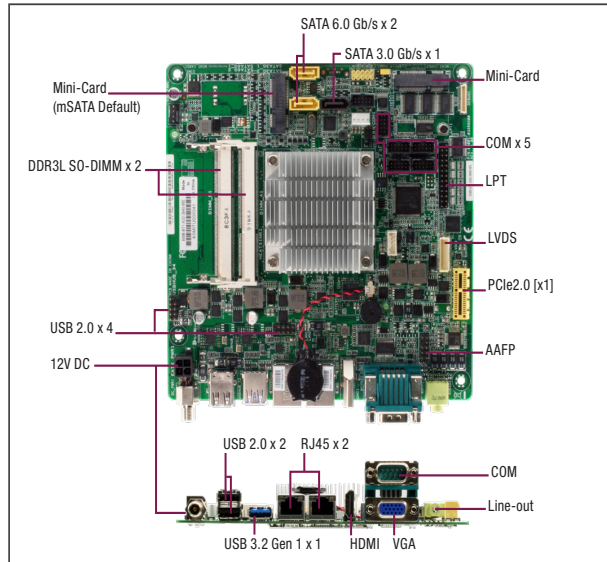


# EMB-BT1

Mini-ITX Embedded Motherboard with Intel® Celeron® J1900/N2807/ Atom® E3845 Processor, SATA3 x 2, SATA2 x 2, USB x 8



## Specifications

| System                   |                                                                                                                                                                                                                                           |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Processor                | Intel® Celeron® J1900 Processor (4C @ 2.00 GHz CPU, 688/854 MHz GFX, 10W TDP), Intel® Celeron® N2807 Processor (2C @ 1.58 GHz CPU, 313/750 MHz GFX, 4.3W TDP), Intel® Atom® E3845 Processor (4C @ 1.91 GHz CPU, 542/792 MHz GFX, 10W TDP) |
| Chipset                  | —                                                                                                                                                                                                                                         |
| Memory                   | DDR3L 1333 MHz SODIMM x 2 up to 8 GB (for J1900 / E3845), DDR3L 1333 MHz SODIMM x 1 up to 4 GB (for N2807), Non-ECC, un-buffered memory, Dual-channel memory architecture flat type                                                       |
| I/O Chipset              | Fintech 81866D                                                                                                                                                                                                                            |
| Ethernet                 | Realtek® PCIe Gb LAN 8111H x 2                                                                                                                                                                                                            |
| Audio                    | Realtek® ALC897                                                                                                                                                                                                                           |
| TPM                      | Infineon SLB9635 TT 1.2 (default : No)                                                                                                                                                                                                    |
| Expansion Slots          | Full-size Mini-Card (mSATA default) (PCIe+USB optional) + SIM Card (default: No) x 1, Half-size Mini-Card (PCIe+USB) x 1, PCIe [x1] x 1                                                                                                   |
| BIOS                     | 64 M bit Flash ROM, AMI BIOS                                                                                                                                                                                                              |
| H/W Monitor              | Temperature Monitor on CPU/System, Voltage Monitor on Vcore/5V/3.3V/12V, Fan Monitor on CPU/Chassis                                                                                                                                       |
| WatchDog Timer           | 1~255 steps by software program                                                                                                                                                                                                           |
| Smart Fan Control        | Chassis Fan (fanless)                                                                                                                                                                                                                     |
| Wake On LAN/ PXE         | Yes (WOL/PXE)                                                                                                                                                                                                                             |
| Power State              | S3, S4, S5                                                                                                                                                                                                                                |
| Graphics                 |                                                                                                                                                                                                                                           |
| Graphics Chipset         | Intel® HD Graphics                                                                                                                                                                                                                        |
| Graphics Multi Display   | VGA+LVDS, VGA+HDMI, LVDS+HDMI                                                                                                                                                                                                             |
| VGA                      | Up to 1920 x 1200 @60 Hz                                                                                                                                                                                                                  |
| DVI                      | —                                                                                                                                                                                                                                         |
| HDMI                     | Up to 1920 x 1200 @60 Hz                                                                                                                                                                                                                  |
| Display Port             | —                                                                                                                                                                                                                                         |
| LVDS                     | Up to 1920 x 1080 @60Hz, dual-channel 18/24-bit (via CH7511)                                                                                                                                                                              |
| eDP                      | —                                                                                                                                                                                                                                         |
| Backlight Control        | Voltage/PWM                                                                                                                                                                                                                               |
| Environment & Power & ME |                                                                                                                                                                                                                                           |
| Battery                  | Lithium battery                                                                                                                                                                                                                           |
| Power Requirement        | 12VDC                                                                                                                                                                                                                                     |
| Operating Temperature    | 32°F ~ 140°F (0°C ~ 60°C)                                                                                                                                                                                                                 |
| Storage Temperature      | -40°F ~ 185°F (-40°C ~ 85°C)                                                                                                                                                                                                              |
| Operating Humidity       | 0% ~ 90% R/H, non-condensing                                                                                                                                                                                                              |
| Certificate              | CE & FCC                                                                                                                                                                                                                                  |
| Form Factor              | Mini-ITX 6.7" x 6.7" (170mm x 170mm)                                                                                                                                                                                                      |
| Weight                   | 1.1 lb (0.5 Kg)                                                                                                                                                                                                                           |
| MTBF (Hours)             | 111,131                                                                                                                                                                                                                                   |

## Features

- Intel® Celeron® J1900/N2807/ Atom® E3845 Processor
- Dual Displays: VGA x 1, HDMI x 1, LVDS x 1
- Realtek 8111H, Gigabit Ethernet x 2
- SATA 6.0 Gb/s x 2, SATA 3.0 Gb/s x 2 (1 Colay with mSATA)
- USB 3.2 Gen 1 x 1, USB 2.0 x 7
- Full-size Mini-Card with mSATA x 1, Half-size Mini-Card x 1, PCI-E[x1] x 1
- 12V DC Power Input



### Rear Panel I/O Ports

|             |                                             |
|-------------|---------------------------------------------|
| USB         | USB 3.2 Gen 1 (5 Gbps)/2.0 x 1, USB 2.0 x 2 |
| Display I/O | VGA x 1, HDMI x 1                           |
| Audio I/O   | Line-out x 1                                |
| LAN I/O     | LAN (RJ-45) port x 2                        |
| Serial Port | COM (RS-232) (optional) x 1                 |
| PS/2 Port   | —                                           |
| Others      | DC port (12V) Screw type x 1                |

### Internal I/O Connectors

| Storage       | SATA3 (6.0Gb/s) x 2, SATA2 (3.0Gb/s) x 2 (1 colay with mSATA), SATA power connector x 1, Full Size Mini-Card slot (mSATA) x 1                          |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| USB           | USB 2.0 (2 x 5-pin, 2.54mm) x 2 ports support additional 4 USB, USB 2.0 (1x 5-pin, 2.0mm) x 1 port supports additional 1 USB                           |
| Display I/O   | LVDS connector x 1, LVDS 3V /5V jumper x 1, LCD DC / PWM mode jumper x 1, LCD backlight connector (inverter) x 1, LCD backlight 12V /5V jumper x 1     |
| Audio I/O     | AAFP x 1                                                                                                                                               |
| Serial Port   | Box header for COM (RS-232) x 4, Box header for COM (RS-232/422/485) x 1                                                                               |
| PS/2 Port     | PS/2 Keyboard Mouse 6 PIN Connector x 1                                                                                                                |
| Parallel Port | SPP/EPP Mode                                                                                                                                           |
| DIO           | DIO (4in/4out) x 1                                                                                                                                     |
| FAN           | Chassis Fan connector x 1                                                                                                                              |
| Power         | 12V AUX Power Connector x 1, AT/ATX mode select jumper (default : No) x 1                                                                              |
| Others        | Half-size Mini-Card (PCIe + USB) x 1, PCIe [x1] x 1, SIM Card Socket(default : No) x 1, LPT PIN header x 1, Front Panel connector x 1, CMOS jumper x 1 |
| OS            |                                                                                                                                                        |
| OS Support    | Windows® 10 64-bit, Windows® 7 32/64-bit, Windows® 8.1 32/64-bit, Linux Fedora                                                                         |

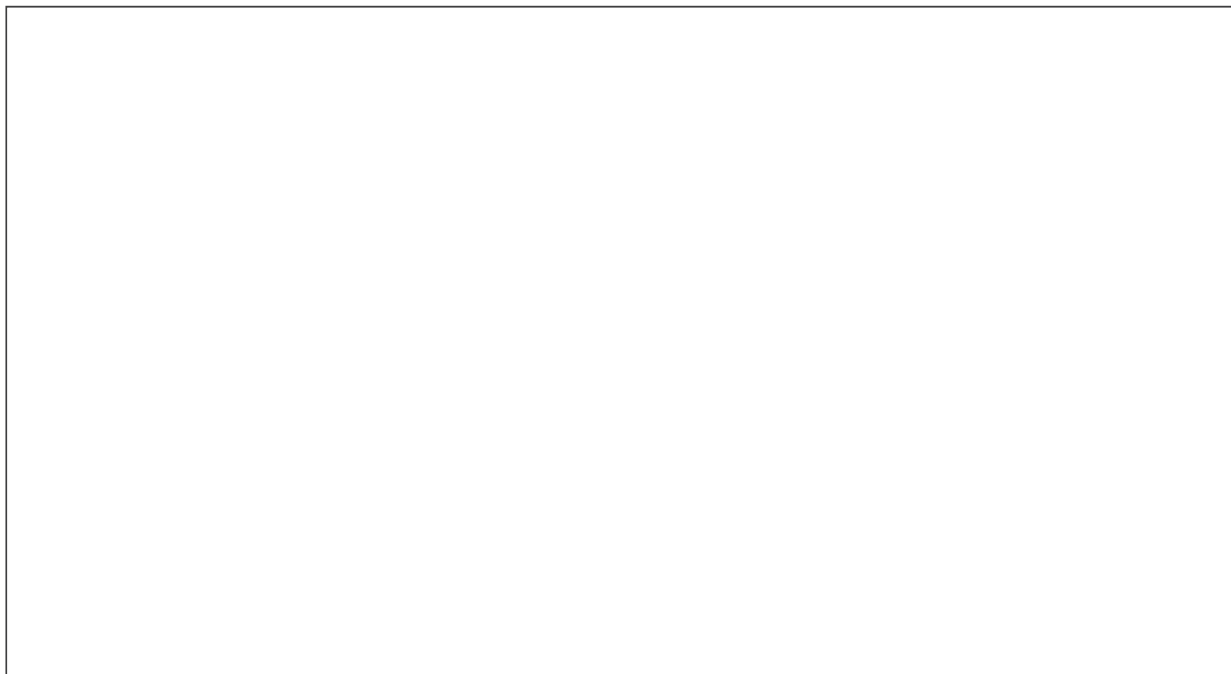
## Packing List

- SATA Cable
- SATA Power Cable
- I/O Shield
- Heatsink
- EMB-BT1

## Optional Accessories

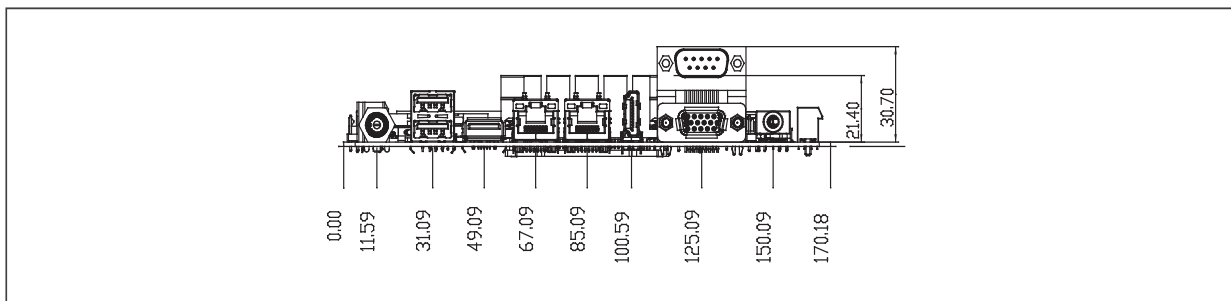
| Part Number | Description                                      |
|-------------|--------------------------------------------------|
| 1709100330  | USB 2.0 Cable (9P, 330MM, p=2.54mm, w/ bracket)  |
| 1709050201  | USB 2.0 Cable (5P, 220MM, p=2.00mm)              |
| 1701260305  | LPT Cable (25P, 270MM)                           |
| 1701100206  | COM Port Cable                                   |
| 1700060152  | PS/2 Cable (6P, 150mm, p=2.00mm)                 |
| 170910020K  | USB 2.0 Cable (9P, 200MM, p=2.54mm, w/o bracket) |
| 1702150300  | SATA Power Cable 4P, 2.54mm                      |
| 125590084A  | Adapter 12V, 84W/N3                              |

## Block Diagram



## Dimension

Unit: mm



## Ordering Information

| Part Number             | CPU   | RAM               | Fan/<br>Fanless | Display            | Storage                                                  | LVDS                      | LAN     | USB                                  | RS-232 | RS-232/422/485 | Expansion Slot                                                  | Power  | TPM | Temp.                        |
|-------------------------|-------|-------------------|-----------------|--------------------|----------------------------------------------------------|---------------------------|---------|--------------------------------------|--------|----------------|-----------------------------------------------------------------|--------|-----|------------------------------|
| EMB-BT1-A31-1900-MSH    | J1900 | DDR3L-1333<br>x 2 | Fanless         | VGA, LVDS,<br>HDMI | SATA2 x 1, SATA3 x 2, Full<br>size Mini-Card x 1 (mSATA) | Dual Channel<br>18/24-bit | GbE x 2 | USB 3.2 Gen<br>1 x 1, USB<br>2.0 x 7 | 5      | 1              | PCIe [x1] x 1, Half-size Mini-Card x 1<br>(PCIe [x1] x 1 & USB) | 12V DC | —   | 32°F ~ 140°F<br>(0°C ~ 60°C) |
| EMB-BT1-A31-2807-MSH-1D | N2807 | DDR3L-1066<br>x 1 | Fanless         | VGA, LVDS,<br>HDMI | SATA2 x 1, SATA3 x 2, Full<br>size Mini-Card x 1 (mSATA) | Dual Channel<br>18/24-bit | GbE x 2 | USB 3.2 Gen<br>1 x 1, USB<br>2.0 x 7 | 5      | 1              | PCIe [x1] x 1, half size Mini-Card x 1<br>(PCIe [x1] x 1 & USB) | 12V DC | —   | 32°F ~ 140°F<br>(0°C ~ 60°C) |
| EMB-BT1-A31-3845-MSH    | E3845 | DDR3L-1333<br>x 2 | Fanless         | VGA, LVDS,<br>HDMI | SATA2 x 1, SATA3 x 2, Full<br>size Mini-Card x 1 (mSATA) | Dual Channel<br>18/24-bit | GbE x 2 | USB 3.2 Gen<br>1 x 1, USB<br>2.0 x 7 | 5      | 1              | PCIe [x1] x 1, half size Mini-Card x 1<br>(PCIe [x1] x 1 & USB) | 12V DC | —   | 32°F ~ 140°F<br>(0°C ~ 60°C) |

## Assured Systems

Assured Systems is a leading technology company with over 1,500 regular clients in 80 countries, deploying over 85,000 systems to a diverse customer base in 12 years of business. We offer high-quality and innovative rugged computing, display, networking and data collection solutions to the embedded, industrial, and digital-out-of-home market sectors.

### US

[sales@assured-systems.com](mailto:sales@assured-systems.com)

Sales: +1 347 719 4508

Support: +1 347 719 4508

1309 Coffeen Ave  
Ste 1200  
Sheridan  
WY 82801  
USA

### EMEA

[sales@assured-systems.com](mailto:sales@assured-systems.com)

Sales: +44 (0)1785 879 050

Support: +44 (0)1785 879 050

Unit A5 Douglas Park  
Stone Business Park  
Stone  
ST15 0YJ  
United Kingdom

VAT Number: 120 9546 28

Business Registration Number: 07699660