

## Embedded Systems

Our Durable Embedded Systems for Your Industrial-grade Applications



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We utilize the latest computer technology to develop true industrial computers, providing high reliability, good scalability, and long product life cycle support. Our system family is able to satisfy a variety of intelligent solutions such as: IoT, Industry 4.0, transportation, digital healthcare, and smart energy.



## Embedded Systems Index

### Ultra Compact Fanless PC



EC70A-ADP



EC700-ADN

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### Embedded PC



EC500-ADS

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### IPC System & Chassis

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ST102



#### Micro-ATX Wall Mount

WM343



#### ATX Rack Mount

RM641



#### EATX Rack Mount

RM840



| Processor  | Model  | Index |
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MPC544-RPS



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### Ruggedized Embedded System

ECX700-AL



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## Embedded Systems Index

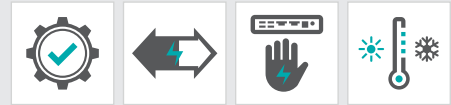
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| 9th/8th Gen Intel® Core™ Processor   | EC500-CS, EC510/EC511-CS, EC543-CS                 | Embedded PC                  | P17   |
|                                      | ES220-CS, ES220F-CS                                | Embedded PC                  | P18   |
|                                      | EC180-CS, DT200-CS                                 | AI Inference/Training System | P25   |
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| 7th Gen Intel® Core™ Processor       | EC70A-KU   | Ultra Compact Fanless PC     | P9    |
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|                                      | VC70B-KU   | Application-Specific System  | P40   |
| 7th/6th Gen Intel® Core™ Processor   | EC70A-SU, EB100-KU                                 | Ultra Compact Fanless PC     | P10   |
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|                                      | RM641-SD   | AI Inference/Training System | P26   |
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| Processor  | Model  | Product Group                | Index |
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| 3rd/2nd/1st Gen Intel® Xeon® Scalable Processor Family | RM840-PR810  | AI Inference/Training System | P27   |
|  |  | IPC System & Chassis         |       |
| 2nd/1st Gen Intel® Xeon® Scalable Processor Family     | RM620-PR611  | IPC System & Chassis         | P35   |
| Intel® Atom® Processors X Series                       | EC700-ADN, ED700-EHL221, ED700-EHL                         | Ultra Compact Fanless PC     | P11   |
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|  | EC220/EC221-BTA881, EC220/EC221-BTAG60, EC220/EC221-BT6060 | Embedded PC                  | P21   |
|  | VC230-BT   | Application-Specific System  | P40   |
| AMD® Ryzen™ Embedded V1000/R1000 Series                | DT122-GH   | IPC System & Chassis         | P34   |
| AMD® Ryzen™ Embedded R1000 Series                      | EC90A-GH   | Ultra Compact Fanless PC     | P10   |
| NVIDIA® Jetson Xavier™ NX                              | EC100-XXN, EC102-XXN                                       | AI Inference/Training System | P24   |
| NXP i.MX 8M Mini                                       | EC900-8MM, EC910-8MM                                       | Ultra Compact Fanless PC     | P14   |
| NXP i.MX 8M Quad/Dual                                  | VC900-M8M  | Application-Specific System  | P41   |
| NXP i.MX 6 Series Processor                            | EC900-FS6  | Ultra Compact Fanless PC     | P14   |
| Qualcomm Snapdragon QRB5165                            | EC700-QRB  | Ultra Compact Fanless PC     | P14   |

## Rugged Design

- Industrial-rated components with high MTBF over 100,000 hours
- Extended operating temperatures
- High ESD protection for I/O ports
- Comprehensive signal integrity measurement
- Wide range power design
- 100% Japan-made solid capacitor
- Power hot plug protection for DC-in type SBC and Industrial Motherboards



## Software Support

- Embedded BIOS and OS customization services
- Ubuntu IoT Hardware Certification Partner Program
- Multiple Android, Linux distribution support
- DFI developing embedded API  
(Hardware monitor, SMBus, I<sup>2</sup>C, Brightness Control, GPIO, Watchdog)
- Remote management utility (DFI RemoGuard with Innoage SSD)

ubuntu<sup>+</sup>

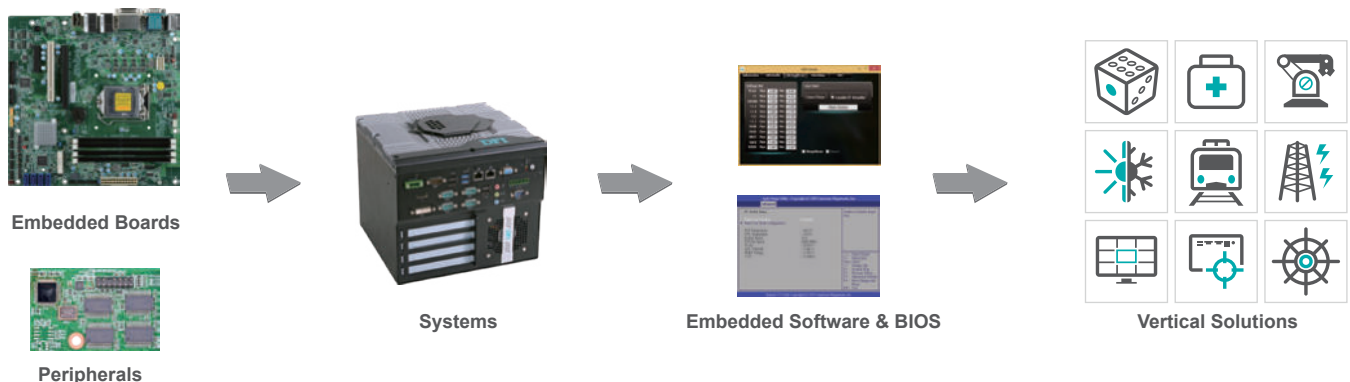


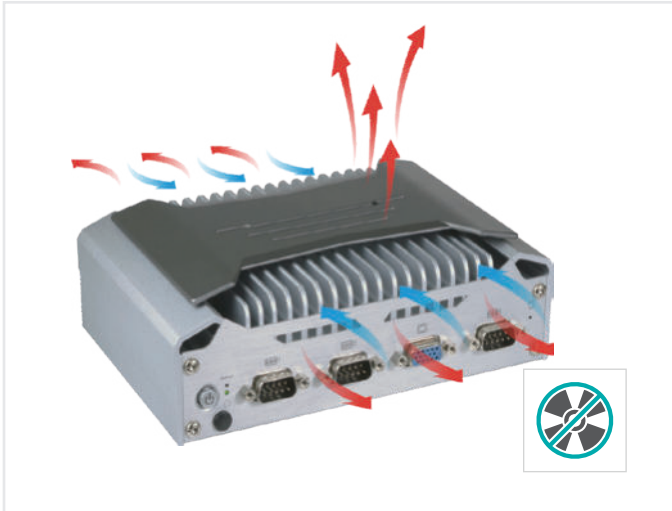
## Embedded Total Solution

- Express customization service: 30 days (NRE cost: based on project)
- Strict revision control
- Long product life cycle support
- High volume OEM/ODM production capabilities



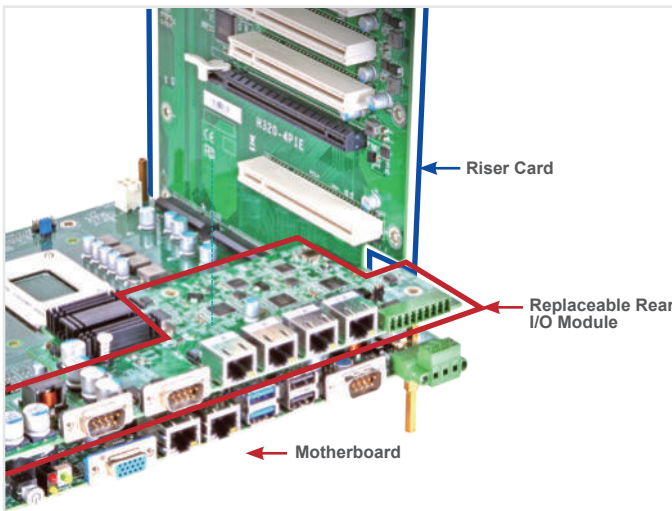
## We Provide a Total Solution Designed for Your Embedded Applications





### Small and Lightweight, but Powerful

- Equipped with up to date Intel® Core™ and AMD Ryzen™ Processors with reliable memory design
- Optimized low profile thermal solution to improve system durability and reliability
- With ruggedized construction, the system survives a wide operating temperature range
- Various types of compact designed system, smallest dimension up to 110 x 80mm x 60mm (W x H x D)



### Ultra-Flexible and Time-Effective Design

- Innovative modular concept designed to meet OEM requirements
- Replaceable I/O modules to provide I/O variations targeting industrial automation applications
- Multiple expansion configuration via different riser cards to offer flexibility to satisfy dedicated demands



### Various Form-Factor Configurable Systems

- Full range of standard industrial motherboards like Mini-ITX, ATX, microATX
- Multiple rack-mount, wall-mount chassis Options
- Designed for fast and easy implementation with minimal setup in a cost-effective manner
- Provides the configurable Options with well-integrated hardware and software to boost applications

# Ultra Compact Fanless PC

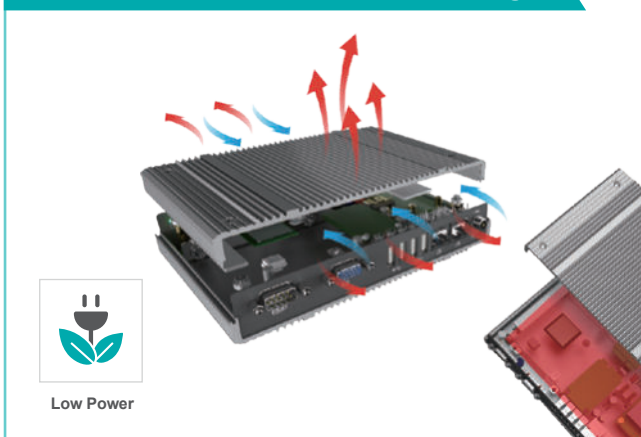
Low Power & Compact Solutions



## Features

Our industrial compact embedded systems, powered by 12th/11th/7th/6th Gen IntelCore. ULV processors and/or low power Atom/ARM processors, deliver extremely low power consumption for efficient fanless thermal solution in an ultra-small size. The systems are also equipped with extensive I/O interfaces and have efficient wireless connectivity to the cloud. Fanless & Compact Embedded Systems are ideal for a wide range of industrial applications such as factory automation, IoT gateways, and smart healthcare.

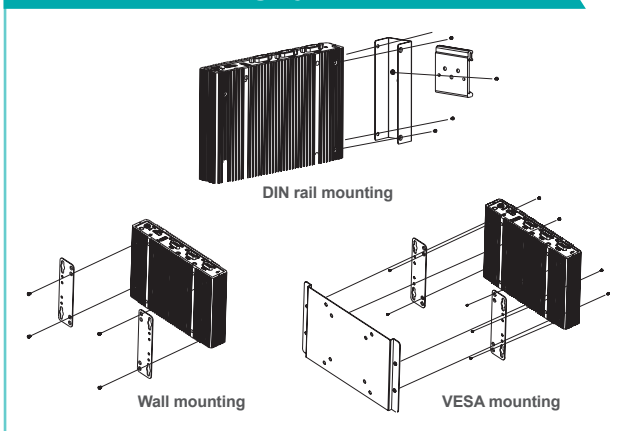
### Excellent Thermal Dissipation Design



### Compact and Rugged Design



### Multiple Mounting Type



### Rich Wireless Connectivity







| Model Name  |                        | EC700-QRB   | EC900-8MM   | EC910-8MM                    | EC900-FS6  |
|-------------|------------------------|---|---|------------------------------|--|
| Platform    |                        | ARM   | ARM   |                              | ARM  |
| System      | Processor              | Qualcomm® Robotics RB5 Platform: QRB5165  | i.MX 8M Mini Processor                              |                              | NXP i.MX 6 Series Processor  |
|             | Socket                 | BGA type  | BGA type  |                              | 21x21 BGA  |
|             | Max. Speed             | 2.84GHz   | 1.6/1.8Ghz  |                              | 1.0GHz   |
|             | CPU TDP                | -   | -   |                              | -  |
|             | Cache                  | -   | -   |                              | -  |
|             | Chipset                | -   | -   |                              | -  |
|             | BIOS                   | -   | -   |                              | -  |
| Memory      | Technology             | POP LPDDR5  | LPDDR4 die size                                     |                              | Single Channel DDR3L 1600MHz   |
|             | Max. Capacity          | 8GB   | Default 1GB/4GB, up to 8GB                          |                              | 1/2GB  |
|             | Socket                 | Memory Onboard  | Memory Onboard                                      |                              | Memory Onboard   |
| Storage     |                        | UFS 3.1, default 128GB, Micro-SD Card   | eMMC 8GB (up to 64GB), Micro-SD Card                |                              | 4MB NOR Flash, 8GB/16GB eMMC, 1 micro SD                                 |
| Expansion   |                        | 1 M.2 B key 3052, 1 M.2 E key 2230, 1 Nano SIM slot                             | 1 M.2 E key 2230, 1 M.2 B key 3042/2242, 1 Nano SIM |                              | 1 Full mPCIe   |
| Audio       | Audio Codec            | WCD9385   | -   |                              | -  |
| Ethernet    | Controller             | AX88179A USB3 to GbE controller   | 1 Atheros Ethernet RTL8211, 1 Ethernet              |                              | 1 Atheros Ethernet AR8033-AL1B, 1 Microchip USB to Ethernet LAN7500-ABZJ |
| LED         | Indicators             | Power LED   | Status LED  |                              | Status LED   |
| I/O         | Ethernet (GbE)         | 1   | 2   |                              | 2  |
|             | Serial                 | 1 RS-232/422/485 (DB9)  | 1 RS-485, 1 RS-422                                  | 1 RS-485, 1 RS-422, 2 RS-232 | 1 RS-485, 1 RS-422, 1 UART   |
|             | USB                    | 2 USB 3.2 Gen1 (Type A), 1 USB 2.0 (Type A), 1 USB 3.2 OTG (Type C), with DP 4K | 2 USB 2.0   |                              | 3 USB 2.0, 1 OTG USB (Internal)  |
|             | Display                | 1 HDMI 1.4  | 1 HDMI  |                              | 1 HDMI   |
|             | DIO                    | 1x 8-bit DIO terminal block   | 4-bit DIO   |                              | 4-bit DIO  |
|             | Buttons                | 1 Power Button  | 1 Power reset button                                |                              | 1 Power Reset Button   |
|             | Wi-Fi Antenna          | 6 Holes   | 2 Holes   | 6 Holes                      | 2 Holes  |
|             | Audio                  | Audio Jack (Line-out/Mic-in)  | -   |                              | -  |
| Power       |                        | 12V DC-in (DC Jack)   | 9~36V DC-in   |                              | 9~36V DC-in  |
| Cooling     |                        | Fanless   | Fanless   |                              | Fanless  |
| OS Support  |                        | Ubuntu 20.04  | Yocto 3.3, Kernel 5.10.72                           |                              | Yocto, Android   |
| Mechanism   | Construction           | Aluminum + Metal Aluminum   | Sheet Metal   |                              | Sheet Metal  |
|             | Mounting               | Wall Mount  | Din-rail Mount                                      |                              | Din Rail Mount   |
|             | Dimensions (W x H x D) | 181.6 x 52 x 105.4mm  | 145 x 34 x 96mm                                     | 145 x 40 x 96mm              | 145 x 34 x 96.4mm  |
| Environment | Operating Temp.        | 0°C~50°C  | -5°C~60°C, -40°C~70°C (Opt.)                        |                              | -20°C~60°C, -40°C~70°C   |

# 12th/11th/7th Gen Intel Core Processor



| Model Name  |                           | EC70A-ADP   | EC70A-TGU  | EC70A-KU  |
|-------------|---------------------------|---|--|---|
| Platform    |                           | ULT   | ULT  | ULT   |
| System      | Processor                 | 12th Gen Intel® Core™ Processor   | 11th Gen Intel® Core™ Processor  | 7th Gen Intel® Core™ Processor                          |
|             | Socket                    | BGA 1744  | FCBGA 1449   | BGA 1356  |
|             | Max. Speed                | 4.4~4.7GHz  | 3.9~4.4GHz   | 2.4~3.9GHz  |
|             | CPU TDP                   | 15/28W  | 15W  | 15W   |
|             | Cache                     | 10/12M  | 6/8/12M  | 3/4M  |
|             | Chipset                   | -   | -  | -   |
|             | BIOS                      | AMI SPI 256Mbit   | AMI SPI 256Mbit  | Insyde SPI 128Mbit                                      |
| Memory      | Technology                | Dual Channel DDR4 3200MHz   | Dual Channel DDR4  | Dual Channel DDR4 2133MHz                               |
|             | Max. Capacity             | 40GB<br>(8GB memory onboard + 32GB memory DIMM)                               | 40GB<br>(8GB memory onboard + 32GB memory DIMM)  | 4/8GB   |
|             | Socket                    | Memory Onboard,<br>1 SODIMM   | Memory Onboard,<br>1 SODIMM  | Memory Onboard  |
| Storage     |                           | 1 M.2 2280  | 1 M.2 2280   | 1x 2.5" SATA 3.0 Drive Bay,<br>1 mSATA-mini, 1 M.2 2280 |
| Expansion   | PCIe, PCI                 | -   | -  | -   |
|             | Mini PCIe, M.2, SIM       | 1 M.2 2280 M Key, 1 M.2 3042/3052 B Key,<br>1 M.2 2230 E Key, 1 SIM for 4G/5G | 1 M.2 3042/3052 B Key, 1 M.2 2230 E Key,<br>1 M.2 2280 M Key   | 1 Full mPCIe, 1 Half mPCIe, 1 M.2 2280                  |
| Audio       | Audio Codec               | Realtek ALC888  | Realtek ALC888   | Realtek ALC888  |
| Ethernet    | Controller                | 3 Intel® I225   | 1 Intel® I225 + 1 Intel® I210 or<br>1 Intel® I225 + 2 Intel® I210 or<br>1 Intel® I225 + 2 Intel® I210 + 1 Microchip LAN7500i | 1 Intel® I210, 1 Intel® I219                            |
| LED         | Indicators                | Power, HDD LED  | Power, HDD LED   | Status, HDD LED   |
| I/O         | Ethernet (GbE)            | 1x 2.5GHz + 2x GbE  | 2 or 3 or 4  | 2   |
|             | Serial                    | 2 RS-232/422/485,<br>1 RS-232, 1 RS-232/DIO                                   | 2 RS-232/422/485,<br>1 RS-232, 1 RS-232/DIO  | 2 RS-232/422/485,<br>4 RS-232                           |
|             | USB                       | 4 USB 3.2<br>(4 Type A or 2 Type A + 2 Type C)                                | 2 or 4 or 6 USB 3.2 (type A)   | 4 USB 3.2, 4 USB 2.0                                    |
|             | Display                   | 1 HDMI, 1 DP,<br>2 Type-C DP Alt. Mode  | 1 VGA, 2 HDMI  | 1 VGA,<br>1 HDMI/DP (auto detection), 1 HDMI            |
|             | DIO                       | 8-bit DIO via DB-9 port (share with COM3)                                     | 8-bit DIO via DB-9 port (share with COM3)  | 8-bit DIO via DB-9 port                                 |
|             | Buttons                   | Power, Reset Button   | Power, Reset Button  | Power, Reset Button                                     |
|             | Wi-Fi Antenna             | 6 Holes   | 6 Holes  | 2 Holes   |
|             | Audio                     | Mic-in, Line-out  | -  | Mic-in, Line-out  |
| Power       |                           | 9~36V DC-in   | 9~36V DC-in  | 15~36V DC-in  |
| Cooling     |                           | Fanless (optional with Fan)   | Fanless  | Fanless   |
| OS Support  |                           | Win10 IoT Enterprise & Linux  | Win10 IoT Enterprise & Linux   | Win10 IoT Enterprise & Linux                            |
| Mechanism   | Construction              | Metal + Aluminum  | Metal + Aluminum   | Aluminum + Metal Aluminum                               |
|             | Mounting                  | Wall/VESA/DIN Rail Mount  | Wall/VESA/DIN Rail Mount   | Wall/VESA Mount   |
|             | Dimensions<br>(W x H x D) | 181.6 x 57 x 118.4mm  | 181.6 x 57 x 118.4mm   | 181.6 x 67 x 118.4mm                                    |
| Environment | Operating Temp.           | Fanless: -20°C~60°C<br>W/Fan: -20°C~70°C                                      | -20°C~60°C   | -20°C~60°C  |

## 7th/6th Gen Intel Core Processor & AMD Ryzen Embedded R1000 Series



| Model Name  |                        | EC70A-SU                                 | EB100-KU                               | EC90A-GH                                      |
|-------------|------------------------|--|--|---|
| Platform    |                        | ULT                                      | ULT                                    | AMD   |
| System      | Processor              | 7th/6th Gen Intel® Core™ Processor       | 7th/6th Gen Intel® Core™ Processor     | AMD® Ryzen™ Embedded R1000 Series             |
|             | Socket                 | BGA 1356                                 | BGA 1356                               | BGA1140                                       |
|             | Max. Speed             | 2.3~3.9GHz                               | 2.3~3.9GHz                             | 2.6~3.5GHz                                    |
|             | CPU TDP                | 15W                                      | 15W                                    | up to 12W                                     |
|             | Cache                  | 3/4M                                     | 2/3/4M                                 | 1M  |
|             | Chipset                | -  | -                                      | -   |
|             | BIOS                   | Insyde SPI 128Mbit                       | Insyde SPI 128Mbit                     | AMI SPI 64bit                                 |
| Memory      | Technology             | Dual Channel DDR4 2133MHz                | Dual Channel DDR4 1866/2133MHz         | Single DDR4 2400MHz                           |
|             | Max. Capacity          | 4/8GB                                    | 32GB                                   | up to 8GB                                     |
|             | Socket                 | Memory Onboard                           | 2 SODIMM                               | Memory onboard                                |
| Storage     |                        | 1x 2.5" SATA 3.0 Drive Bay, 1 mSATA-mini | 1x 2.5" SATA 3.0 Drive Bay, 1 M.2 2280 | eMMC up to 16/32/64/128GB                     |
| Expansion   | PCIe, PCI              | -  | -                                      | -   |
|             | Mini PCIe, M.2         | 1 Full mPCIe, 1 Half mPCIe               | 1 Half mPCIe, 1 M.2 2280               | 1 Full mPCIe                                  |
|             | SIM, micro SD          | -  | -                                      | -   |
| Audio       | Audio Codec            | Realtek ALC888                           | -                                      | -   |
| Ethernet    | Controller             | 1 Intel® I210, 1 Intel® I219             | 1 Intel® I210, 1 Intel® I219           | 1 Intel® I211 or 1 Intel® I210(Opt.)          |
| LED         | Indicators             | Power, HDD LED                           | Power, Storage LED                     | Power status                                  |
| I/O         | Ethernet (GbE)         | 2  | 2                                      | 1   |
|             | Serial                 | 2 RS-232/422/485, 2 RS-232               | -                                      | Combo Port : 2 RS232 (or 8-bit DIO + 1 SMBus) |
|             | USB                    | 4 USB 3.2                                | 4 USB 3.2, 2 USB 2.0                   | 1 USB 3.2 Gen2 type C                         |
|             | Display                | 1 VGA, 1 HDMI/DP (DP upon request)       | 2 HDMI                                 | 2 Micro HDMI 1.4                              |
|             | DIO                    | 8-bit DIO via DB-9 port                  | -                                      | Combo Port : 8-bit DIO (or 2 RS232)           |
|             | SMBus                  | -  | -                                      | Combo Port : 1 SMBus(or 2 RS232)              |
|             | Buttons                | Power, Reset Button                      | Power, Reset Button                    | -   |
|             | Wi-Fi Antenna          | 3 Holes                                  | 2 Holes                                | 2 Holes (LTE or WiFi)                         |
|             | Audio                  | Mic-in, Line-out                         | Line-out, Mic-in                       | -   |
| Power       |                        | 15~36V DC-in                             | 12V DC-in                              | 12V DC-in                                     |
| Cooling     |                        | Fanless                                  | Fanless                                | Fanless                                       |
| OS Support  |                        | Win7, WES 7, Win8.1, WE8S, Win10         | Win10 IoT Enterprise                   | Win10 IoT Enterprise, Ubuntu                  |
| Mechanism   | Construction           | Aluminum + Metal Aluminum                | Aluminum + Metal                       | Aluminum + Metal                              |
|             | Mounting               | Wall/VESA/Din Rail Mount                 | Wall/VESA Mount                        | Wall/VESA Mount                               |
|             | Dimensions (W x H x D) | 181.6 x 57 x 118.4mm                     | 115 x 48.7 x 111mm                     | 112.29 x 80 x 56.20 mm                        |
| Environment | Operating Temp.        | -20°C~60°C, 0°C~50°C                     | -20°C~40°C                             | -20°C~45°C                                    |



| Model Name  |                        | EC700-ADN  | ED700-EHL22I                       | ED700-EHL  |                                  |
|-------------|------------------------|--|------------------------------------|--|----------------------------------|
| Platform    |                        | Atom   |                                    | Atom   |                                  |
| System      | Processor              | Intel® Atom® Processors X Series   |                                    | Intel® Atom® Processors X Series                                       |                                  |
|             | Socket                 | BGA 1264   |                                    | BGA 1493   |                                  |
|             | Max. Speed             | 2.7~3.4GHz   |                                    | 1.8~3GHz   |                                  |
|             | CPU TDP                | 6/10/12W   |                                    | 6.5/9/10/12W   |                                  |
|             | Cache                  | 6 MB Smart Cache   |                                    | 1.5 MB L2 Cache  |                                  |
|             | Chipset                | -  |                                    | -  |                                  |
|             | BIOS                   | AMI SPI 256Mbit (supports UEFI boot only)  |                                    | AMI SPI 256Mbit (supports UEFI boot only)                              |                                  |
| Memory      | Technology             | LPDDR5 5200MHz   | Dual Channel DDR4 3200MHz          |  |                                  |
|             | Max. Capacity          | 8GB/16GB   | up to 32GB                         |  |                                  |
|             | Socket                 | Memory down  | Memory onboard + 1 SO-DIMM         |  |                                  |
| Storage     |                        | eMMC 32GB/64GB, 1 Micro SD, 1 M.2 2280 B+M key, 1 M.2 2230 A+E key   | 1 M.2 2280, 16GB/32GB/64GB eMMC    |  |                                  |
| Expansion   |                        | 1 M.2 2230 A+E key, 1 Full mPCIe, 1 M.2 2242/2280 B+M key, 1 SIM, Hailo-8 M.2 AI Acceleration Module(Opt.) | 1 M.2 2230, 1 M.2 3042/3052, 2 SIM |  |                                  |
| Audio       | Audio Codec            | Realtek ALC888S  |                                    | Realtek ALC888   |                                  |
| Ethernet    | Controller             | 2 Intel® I226, 1 Intel® I210   |                                    | 2 or 3 Intel® I210/I211  |                                  |
| LED         | Indicators             | Power, Storage LED   |                                    | -  |                                  |
| I/O         | Ethernet (GbE)         | 2x 2.5GbE, 1x GbE(Support DFI OOB)   |                                    | 2 or 3 GbE (Opt.),<br>1 2.5GbE TSN, 1 Allixon OOB Enabler (Opt.)       |                                  |
|             | Serial                 | 4 RS232/422/485  |                                    | 2 RS232/422/485, 2 Isolated COM  |                                  |
|             | USB                    | 3 USB 3.2 type A + 1 USB-C (4 USB 3.2 type A Opt.)   |                                    | 2 or 4 USB 3.2 (Opt.), 2 USB 2.0                                       |                                  |
|             | Display                | 1 HDMI, 1 VGA  |                                    | 1 VGA  |                                  |
|             | DIO                    | 4 DI, 4 DO (via COM4)  |                                    | 12-bit isolated DIO+2 isolated COM<br>8-bit DIO (jumper switch to COM) | 8-bit DIO (jumper switch to COM) |
|             | Buttons                | Power, Reset Button  |                                    | -  |                                  |
|             | Wi-Fi Antenna          | 4 Holes  |                                    | 6 Holes (2 for WiFi, 4 for 4G/5G/GPS)                                  |                                  |
|             | Audio                  | Line out or Mic In   |                                    | -  |                                  |
| Power       |                        | 9~36V DC-in  |                                    | 9~36V DC-in  |                                  |
| Cooling     |                        | Fanless  |                                    | Fanless  |                                  |
| OS Support  |                        | Win11 IoT Enterprise, Linux Ubuntu 22.04   |                                    | Win10 IoT Enterprise, Linux Ubuntu 20.04                               |                                  |
| Mechanism   | Construction           | Aluminum + Metal   |                                    | Aluminum + Metal   |                                  |
|             | Mounting               | Wall/DIN Rail/VESA Mount   |                                    | Wall/DIN Rail Mount  |                                  |
|             | Dimensions (W x H x D) | 180 x 127.8 x 33 mm  |                                    | 72 x 172 x 118.2 mm  |                                  |
| Environment | Operating Temp.        | 0°C~60°C   |                                    | 0°C~60°C, -40°C~60°C (Support by Intel® Embedded Series )              |                                  |



| Model Name  |                        | EP100-AL                                    | EC90A-AL                                     | EC800-AL   |
|-------------|------------------------|---|--|--|
| Platform    |                        | Atom  | Atom   | Atom   |
| System      | Processor              | Intel® Atom® Processor E3900                | Intel® Atom® Processor E3900                 | Intel® Atom® Processor E3900                     |
|             | Socket                 | BGA 1296                                    | BGA 1296                                     | BGA 1296   |
|             | Max. Speed             | 1.8GHz                                      | 1.8GHz                                       | 1.8~2.5GHz                                       |
|             | CPU TDP                | 9W  | 6.5/9W                                       | 6/9/12W  |
|             | Cache                  | 2M  | 2M   | 2M   |
|             | BIOS                   | AMI SPI 128Mbit (supports UEFI/Legacy mode) | Insyde SPI 128Mbit (supports UEFI boot only) | Insyde SPI 128Mbit (supports UEFI boot only)     |
| Memory      | Technology             | LPDDR4                                      | Single Channel LPDDR4 2400MHz                | Dual Channel LPDDR4 2400MHz                      |
|             | Max. Capacity          | 4GB   | 2/4GB  | 2/4/8GB  |
|             | Socket                 | Memory Onboard                              | Memory Onboard                               | Memory Onboard                                   |
| Storage     |                        | eMMC up to 64GB                             | 16GB/32GB/64GB eMMC                          | 1 mSATA, 1 M.2 2242                              |
|             | Mini PCIe, M.2         | -   | 1 Full mPCIe socket                          | 1 Full mPCIe, 1 M.2 2230 E Key, 1 M.2 2242 B Key |
|             | SIM, micro SD          | -   | -  | -  |
| Audio       | Audio Codec            | -   | -  | Realtek ALC262                                   |
| Ethernet    | Controller             | 1 Intel® I210                               | 2 Intel® I210                                | 2 Intel® I210                                    |
| LED         | Indicators             | Power, LAN LED                              | Power, HDD LED                               | Power, HDD LED                                   |
| I/O         | Ethernet (GbE)         | 1 PoE PD 802.3af 12.95W                     | 2  | 2  |
|             | Serial                 | -   | 1 RS-232/422/485                             | 2 RS-232/422/485                                 |
|             | USB                    | 2 USB 3.2, 2 USB 2.0                        | 1 USB 2.0, 2 USB 3.2                         | 2 USB 2.0, 2 USB 3.2                             |
|             | Display                | 2 DP++                                      | 1 Mini DP++                                  | 1 VGA/DVI-D, 2 Mini-DP/Micro-HDMI                |
|             | DIO                    | -   | 8-bit DIO via DB-9 port                      | 8-bit DIO via DB-9 port                          |
|             | Buttons                | Reset Button                                | Power Button                                 | Power Button                                     |
|             | Wi-Fi Antenna          | -   | 2 Holes                                      | 2 Holes  |
|             | Audio                  | Line out and Microphone                     | -  | Line-out, Mic-in                                 |
| Power       |                        | 5V/15W                                      | 12V DC-in                                    | 9~36V DC-in                                      |
| Cooling     |                        | Fanless                                     | Fanless                                      | Fanless  |
| OS Support  |                        | Win10 IoT, Linux                            | Win10 IoT, Linux, Linux Yocto                | Win10 IoT, Linux, Linux Yocto                    |
| Mechanism   | Construction           | Aluminum + Metal                            | Sheet Metal                                  | Aluminum   |
|             | Mounting               | Wall Mount                                  | Wall/Din Rail Mount                          | Wall/VESA/Din Rail Mount                         |
|             | Dimensions (W x H x D) | 83 x 47 x 62mm                              | 127 x 42 x 80.4mm                            | 161 x 35.1 x 108.2mm                             |
| Environment | Operating Temp.        | 0°C~50°C                                    | -20°C~60°C                                   | -20°C~60°C, -40°C~70°C (Wide-temp sku only)      |



| Model Name  |                        | EC700-AL  | EC700-BT  |
|-------------|------------------------|---|---|
| Platform    |                        | Atom  | Atom  |
| System      | Processor              | Intel® Atom® Processor E3900                    | Intel® Atom® Processor E3800  |
|             | Socket                 | BGA 1296  | BGA 1170  |
|             | Max. Speed             | 1.8~2.5GHz                                      | 1.33~2.41GHz  |
|             | CPU TDP                | 6/9/10/12W                                      | 4.3/6/10W   |
|             | Cache                  | 2M  | 1/2M  |
|             | Chipset                | -   | -   |
|             | BIOS                   | AMI SPI 128Mbit (support UEFI/legacy mode)      | AMI SPI 64Mbit  |
| Memory      | Technology             | Dual Channel DDR3L 1866MHz                      | Single Channel DDR3L 1066/1333MHz   |
|             | Max. Capacity          | 2/4/8GB   | 2/4GB   |
|             | Socket                 | Memory Onboard, 1 SODIMM                        | ECC/non-ECC Memory Onboard  |
| Storage     |                        | eMMC (Opt.),<br>1 x 2.5" SATA bay, 1 Full mSATA | 1x 2.5" SATA 2.0 Drive Bay,<br>1 mSATA, eMMC Onboard (Opt.), microSD (Opt.) |
| Expansion   | PCIe, PCI              | -   | -   |
|             | Mini PCIe, M.2         | 1 Full mPCIe, 1 M.2 2230 E Key                  | 2 Full mPCIe, 1 Half mPCIe  |
|             | SIM                    | 1 Nano SIM                                      | 1   |
| Audio       | Audio Codec            | Realtek ALC262                                  | -   |
| Ethernet    | Controller             | 2/4 Intel® I210                                 | 2 Intel® I210   |
| LED         | Indicators             | Power, Status LED                               | Status, HDD LED   |
| I/O         | Ethernet (GbE)         | 2/4   | 2   |
|             | Serial                 | 4 RS-232/422/485                                | 4 RS-232/422/485  |
|             | USB                    | 4/2 USB 3.0                                     | 4 USB 2.0, 1 USB 3.0  |
|             | Display                | 1 DP/VGA, 1 DP/HDMI combo (auto detect)         | 1 HDMI + 1 VGA or 1 DVI-I   |
|             | DIO                    | 8-bit DIO via DB-9 port (Opt.)                  | 8-bit DIO via DB-9 port   |
|             | Buttons                | Power, Reset Button                             | Power, Reset Button   |
|             | Wi-Fi Antenna          | 3 Holes   | 3 Holes   |
|             | Audio                  | -   | -   |
| Power       |                        | 9~36V DC-in                                     | 9~36V DC-in   |
| Cooling     |                        | Fanless   | Fanless   |
| OS Support  |                        | Win10 IoT Enterprise, Win7, Linux               | Win7, WES 7, Win8, WES 8, Win8.1, Win10, Linux                              |
| Mechanism   | Construction           | Aluminum + Metal                                | Aluminum + Metal Aluminum   |
|             | Mounting               | Wall/VESA/Din Rail Mount                        | Wall/VESA/Din Rail Mount  |
|             | Dimensions (W x H x D) | 180 x 33 x 127.8mm                              | 180 x 33 x 121.2mm  |
| Environment | Operating Temp.        | -20°C~60°C, -40°C~70°C                          | -20°C~60°C, 0°C~50°C or<br>0°C~60°C, 0°C~50°C                               |

# Embedded Fanless PC

Advanced Computing Solutions

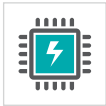


## Features

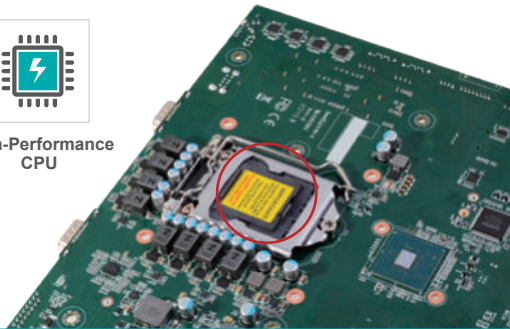
DFI's performance embedded PC series is based on the powerful 9th/8th/7th/6th Gen Intel® Core™ Desktop platform with advanced graphics and computing performance, which are available in solid designs and expansibility. Their high flexibility and reliability will fulfill your various I/O requirements and deliver high computing performance in industry environments.

### Desktop Platforms

9th/8th/7th/6th Gen Intel® Core™ Processor



High-Performance CPU

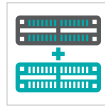


### Customization & Scalability

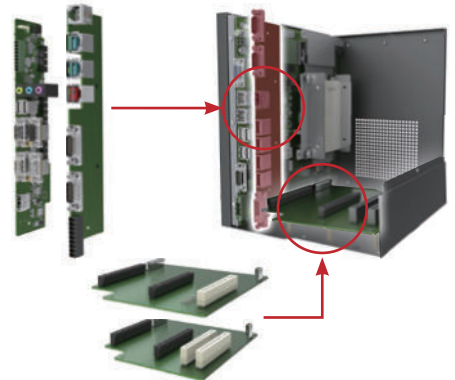
We accept custom-made I/O board on a MOQ basis



Customized I/O Board



Multiple Expansions



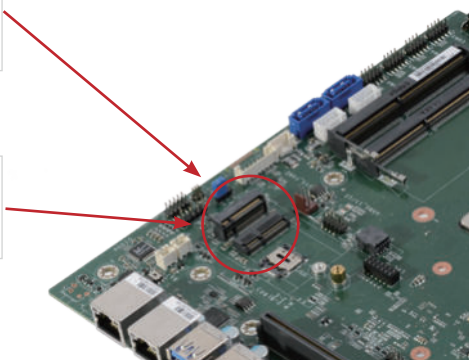
### 5G & Wifi 6 Module



5G



Wifi 6



### Rugged Design



Wide-Temperature



Wide-Voltage

# 13th/12th Gen Intel Core Processor



| Model Name  |                        | EC600-RPS  | EC500-ADS   | EC510-ADS/EC511-ADS   | EC543-ADS  |
|-------------|------------------------|--|---|---|--|
| Platform    |                        | Desktop  |   | Desktop   |  |
| System      | Processor              | 13th/12th Gen Intel® Core™ Processor   |   | 12th Gen Intel® Core™ Processor   |  |
|             | Socket                 | LGA1700  |   | LGA1700   |  |
|             | Max. Speed             | 3.3GHz   |   | 2.4GHz  |  |
|             | CPU TDP                | 35W/65W  |   | 35W   |  |
|             | Cache                  | 4/6/12/18/25/30M   |   | 4/6/12/18/25/30M  |  |
|             | Chipset                | Intel® H610E/R680E   | Intel® H610E/Q670E/R680E  | Intel® Q670E  |  |
| BIOS        |                        | AMI SPI 256Mbit  |   | AMI SPI 256Mbit   |  |
| Memory      | Technology             | Dual Channel DDR5 4800MHz  |   | Dual Channel DDR4 3200MHz   |  |
|             | Max. Capacity          | 64GB   |   | 64GB  |  |
|             | Socket                 | 2 DDR5 SODIMM  |   | 2 DDR4 SODIMM   |  |
| Storage     |                        | 1 M.2 2280   | 2x 2.5" SATA 3.0 Drive Bays,<br>1 M.2 2280 (Q670E/R680E only)                         | 2x 2.5" SATA 3.0 Drive Bays,<br>1 M.2 2280  |  |
| Expansion   | PCIe, PCI, M.2         | 1 M.2 2230 E key,<br>1 M.2 3042/3052 B key,<br>1 or 2 M.2 2242/2280 M key<br>(one for H610E, Two for R680E),<br>1 M.2 3042 A Key,<br>1 Full mPCIe, 1 SIM | 1 M.2 2230 E key,<br>1 M.2 3042/3052 B key,<br>1 M.2 2280 M key<br>(Q670E/R680E Only) | 1 PCI or 1 PCIe x16,<br>1 M.2 2230 E key,<br>1 M.2 2280 M key,<br>1 M.2 3042/3052 B key | 1 PCIe x16, 1 PCIe x4,<br>1 PCIe x1, 1 PCI,<br>1 M.2 2230 E key,<br>1 M.2 2280 M key,<br>1 M.2 3042/3052 B key |
|             |                        | N/A  |   | Realtek ALC888  |  |
| Ethernet    | Controller             | 1 Intel® i219,<br>3 Intel® i210,<br>2 Intel® i226 (R680E Only)   | 2 Intel® I225   |   |  |
| LED         | Indicators             | Status, HDD LED  |   | Status, HDD LED   |  |
| I/O         | Ethernet (GbE)         | H610E: 4 GbE or 2 GbE + 2 PoE (Opt.)<br>R680E: 4 GbE, 2 2.5GbE or 2 GbE,<br>2 2.5GbE, 2 PoE (Opt.)   | 2 GbE   | 2 GbE + 4 PoE or 2 GbE + 2 PoE or 6 GbE or 4 GbE or 2 GbE                               |  |
|             | Serial                 | 2 RS-232/422/485, 4 or 8 RS232   | 4 RS-232/422/485, 2 RS-232  | 4 or 8 RS232/422/485, 2 RS232   |  |
|             | USB                    | H610E: 3 USB 3.2 Gen2, 2 USB 2.0, 1 Type-C<br>R680E: 5 USB 3.2 Gen2, 1 Type-C  | 4 USB 3.2, 2 USB 2.0  | 4 or 6 or 10 USB 3.2, 4 USB 2.0   |  |
|             | Display                | 1 VGA, 1 DP++/HDMI (auto detection)  | 1 VGA, 2 DP++/HDMI (auto detection)   |   |  |
|             | DIO                    | 8bits<br>(share with COM1 DB9 connector)   | 8bits   | 8/16/32 bits  |  |
|             | Buttons                | Power, Reset   | Power, Reset  |   |  |
|             | Wi-Fi Antenna          | 4 Holes  | 4 Holes   | 6 Holes   |  |
|             | Audio                  | N/A  | Mic-in, Line-out  |   |  |
| Power       |                        | 9~36V DC-in  |   | 9~36V DC-in   |  |
| Cooling     |                        | Fanless (optional with Fan)  |   | Fanless   |  |
| OS Support  |                        | Win10 IoT Enterprise, Linux(Opt.)  |   | Win10 IoT Enterprise, Linux(Opt.)   |  |
| Mechanism   | Construction           | Metal + Aluminum   |   | Metal + Aluminum  |  |
|             | Mounting               | Wall Mount   |   |   |  |
|             | Dimensions (W x H x D) | 249.5 x 85 x 223 mm  | 255.3 x 85 x 224 mm   | 255.3 x 124.6 x 224 mm  | 255.3 x 195 x 221.1 mm   |
| Environment | Operating Temp.        | 35W CPU:-20°C~70°C<br>65W CPU:-20°C~50°C<br>(for wide temperature M.2 SSD,<br>w/ 0.7m/sec air flow)  | -20°C~70°C  | -20°C~60°C  |  |



## 9th/8th Gen Intel Core Processor



| Model Name                        |                        | EC500-CS   | EC510/EC511-CS  | EC543-CS                                    |
|-----------------------------------|------------------------|--|---|---|
| Platform                          |                        | Desktop  |   |   |
| System                            | Processor              | 9th/8th Gen Intel® Core™ Processor                   |   |   |
|                                   | Socket                 | LGA 1151   |   |   |
|                                   | Max. Speed             | 3.1~4.0GHz   |   |   |
|                                   | CPU TDP                | 35W  |   |   |
|                                   | Cache                  | 2/4/6/9/12M  |   |   |
|                                   | Chipset                | Intel® H310/Q370/C246                                | Intel® H310/Q370  | Intel® Q370                                 |
|                                   | BIOS                   | AMI SPI 128Mbit                                      |   |   |
| GPU / AI Accelerator Card Support |                        | MXM 3.1 Type A/B/C: RTX2080, RTX2070                 | Intel® movidius™ AI accelerator card (Opt.) (EC511)       | Intel® movidius™ AI accelerator card (Opt.) |
| Memory                            | Technology             | Dual Channel DDR4 2666/2400MHz                       |   |   |
|                                   | Max. Capacity          | 64GB   |   |   |
|                                   | Socket                 | 2 SODIMM   |   |   |
| Storage                           |                        | 2x 2.5" SATA 3.0 Drive Bays, 1 M.2 2280              |   |   |
| Expansion                         | PCIe, PCI              | -  | 1 PCI or 1 PCIe   | 1 PCI, 3 PCIe                               |
|                                   | Mini PCIe, M.2         | 1 M.2 2230 E key, 1 M.2 2280 M key, 1 M.2 3052 B key | 1 M.2 2230 E key, 1 M.2 2280 M key, 1 M.2 3042/3052 B key |   |
| Audio                             | Audio Codec            | Realtek ALC888                                       |   |   |
| Ethernet                          | Controller             | 1 Intel® I210, 1 Intel® I219                         |   |   |
| LED                               | Indicators             | Status, HDD LED                                      |   |   |
| I/O                               | GbE, POE               | 2 GbE  | 2 GbE + 4 PoE or 6 GbE or 2 GbE                           |   |
|                                   | Serial                 | 4 RS-232/422/485, 2 RS-232                           | 4 or 7 RS-232/422/485, 2 RS-232                           |   |
|                                   | USB                    | 4 USB 3.2, 2 USB 2.0                                 | 4 USB 3.2, 4 USB 2.0 or 8 USB 3.2, 2 USB 2.0              |   |
|                                   | Display                | 1 VGA, 1 or 2 DP++/HDMI (auto detection)             |   | 1 VGA, 2 DP++/HDMI (auto detection)         |
|                                   | Audio                  | Mic-in, Line-out                                     |   |   |
|                                   | DIO                    | 8bits  | 8/16 bits   |   |
|                                   | Buttons                | Power, Reset   |   |   |
|                                   | Antenna                | 4 Holes  |   |   |
| Power                             |                        | 9~36V DC-in  |   |   |
| Cooling                           |                        | Fanless  |   |   |
| OS Support                        |                        | Win10 IoT Enterprise, Linux(Opt.)                    |   |   |
| Mechanism                         | Construction           | Metal + Aluminum                                     |   |   |
|                                   | Mounting               | Wall Mount   |   |   |
|                                   | Dimensions (W x H x D) | 255.3 x 85 x 224mm                                   | 255.3 x 124.6 x 224mm                                     | 255.3 x 195 x 224mm                         |
| Environment                       | Operating Temp.        | -20°C~70°C   |   |   |



| Model Name  |                        | ES220-CS   | ES220F-CS                                |
|-------------|------------------------|--|--|
| Platform    |                        | Desktop  |  |
| System      | Processor              | 9th/8th Gen Intel® Core™ Processor                       |  |
|             | Socket                 | LGA 1151   |  |
|             | Max. Speed             | 2.9GHz~4GHz  |  |
|             | CPU TDP                | 35W  |  |
|             | Cache                  | 2/4/6/9/12M  |  |
|             | Chipset                | Intel® C246/Q370/H310                                    |  |
|             | BIOS                   | Insyde SPI 128Mbit                                       |  |
| Memory      | Technology             | Dual Channel DDR4 2666MHz (C246 support ECC)             |  |
|             | Max. Capacity          | 64GB   |  |
|             | Socket                 | 2 SODIMM   |  |
| Storage     |                        | 2x 2.5" SATA bay (Opt.), 1 M.2 2280                      |  |
| Expansion   |                        | 1 M.2 2280 M key, 1 M.2 2230 E key, WiFi                 |  |
| Audio       | Audio Codec            | -  |  |
| Ethernet    | Controller             | 2 Intel® I219/I210                                       |  |
| LED         | Indicators             | Power, HDD LED   |  |
| I/O         | Ethernet (GbE)         | 2  |  |
|             | Serial                 | 2 RS-232/422/485 or 1 RS-232/422/485 + 8-bit DIO         |  |
|             | USB                    | 4 USB 3.2, 2 USB 2.0                                     |  |
|             | Display                | 2 HDMI 2.0   |  |
|             | DIO                    | 8-bit DIO  |  |
|             | Buttons                | Reset, Power Button                                      |  |
|             | Wi-Fi Antenna          | 2 Holes  |  |
|             | Audio                  | -  |  |
| Power       |                        | 12V DC-in  |  |
| Cooling     |                        | Active Fan   | Fanless                                  |
| OS Support  |                        | Win10 IoT Enterprise 2019 LTSC + RS5, Win10 Professional |  |
| Mechanism   | Construction           | Aluminum + Metal   |  |
|             | Mounting               | Wall mount / VESA mount (Opt.)                           |  |
|             | Dimensions (W x H x D) | 175 x 48.5 x 120mm or 175 x 73.5 x 120mm                 | 175 x 69.4 x 120mm or 175 x 90.4 x 120mm |
| Environment | Operating Temp.        | -5°C~45°C  | -5°C~45°C or -20°C~60°C                  |

## 7th Gen Intel Core Processor



| Model Name                        |   | EC500-KH   | EC510/EC511-KH                                      | EC531/EC532-KH                              |
|-----------------------------------|---|--|---|---|
| Platform                          |   | Mobile   |   |   |
| System                            | Processor   | 7th Gen Intel® Core™ Processor                     |   |   |
|                                   | Socket  | BGA 1440   |   |   |
|                                   | Max. Speed  | 2.1~4.2GHz   |   |   |
|                                   | CPU TDP   | 25/35/45W  |   |   |
|                                   | Cache   | 3/6/8M   |   |   |
|                                   | Chipset   | Intel® CM238/QM175                                 |   |   |
| BIOS                              |   | Insyde SPI 128Mbit                                 |   |   |
| GPU / AI Accelerator Card Support |   | -  | Intel® movidius™ AI accelerator card (Opt.) (EC511) | Intel® movidius™ AI accelerator card (Opt.) |
| Memory                            | Technology  | Dual Channel DDR4 2400MHz                          |   |   |
|                                   | Max. Capacity   | 32GB   |   |   |
|                                   | Socket  | 2 SODIMM (CM238 supports ECC)                      |   |   |
| Storage                           |   | 1x 2.5" SATA 3.0 Drive Bay,<br>1 CFast, 1 M.2 2280 | 2x 2.5" SATA 3.0 Drive Bay,<br>1 M.2 2280           |   |
| Expansion                         | PCIe, PCI   | -  | 1 PCI or 1 PCIe x16                                 | 1 PCIe x16 + 2 PCI or<br>2 PCIe x16 + 1 PCI |
|                                   | Mini PCIe, M.2  | 2 Full mPCIe, 1 M.2 2280 M Key                     | 1 Full mPCIe, 1 Full/Half mPCIe, 1 M.2 2280 M key   |   |
|                                   | SIM   | 2 Micro-SIM  |   | 1 Micro-SIM                                 |
| Audio                             | Audio Codec   | Realtek ALC262                                     |   |   |
| Ethernet                          | Controller  | 1 Intel® I211, 1 Intel® I219                       | 4 Intel® I210, 1 Intel® I211, 1 Intel® I219         | 1 Intel® I211, 1 Intel® I219                |
| LED                               | Indicators  | Power, Status, HDD LED                             | Power, HDD LED                                      |   |
| I/O                               | Ethernet (GbE)  | 2  | 6 GbE or 2 GbE + 4 PoE                              | 2   |
|                                   | Serial  | 4 RS-232/422/485                                   | 5 RS-232/422/485                                    | 8 RS-232/422/485                            |
|                                   | USB   | 4 USB 3.2, 2 USB 2.0                               |   | 8 USB 3.2, 2 USB 2.0                        |
|                                   | Display   | 1 VGA, 1 HDMI/DVI (DVI-D signal), 1 HDMI/DP        |   |   |
|                                   | Audio   | Line-out, Mic-in(Opt.)                             |   |   |
|                                   | DIO   | -  | 16-bit DIO  | -   |
|                                   | Buttons   | Reset, Power Button                                |   |   |
| Wi-Fi Antenna                     | 3 Holes   | 4 Holes  | 3 Holes   |   |
| Power                             |   | 9~36V DC-in  |   |   |
| Cooling                           |   | Fanless  |   |   |
| OS Support                        |   | Win10 IoT Enterprise, Linux                        |   |   |
| Mechanism                         | Construction  | Metal + Aluminum                                   |   |   |
|                                   | Mounting  | Wall Mount   |   |   |
|                                   | Dimensions (W x H x D)  | 235 x 60.89 x 222mm                                | 235 x 102.5 x 221.2mm                               | 235 x 153.8 x 222.1mm                       |
| Environment                       | Operating Temp. 0°C~50°C (HDD), -20°C~60°C (SSD), -40°C~70°C (Opt.) |  |   |   |

## 7th/6th Gen Intel Core Processor



| Model Name                        |                        | EC500-SD   | EC510/EC511-SD                                      | EC531/EC532-SD                              |
|-----------------------------------|------------------------|--|---|---|
| Platform                          |                        | Desktop  |   |   |
| System                            | Processor              | 7th/6th Gen Intel® Core™ Processor                   |   |   |
|                                   | Socket                 | LGA 1151   |   |   |
|                                   | Max. Speed             | 2.7~3.8GHz   |   |   |
|                                   | CPU TDP                | 35W  |   |   |
|                                   | Cache                  | 3/4/6/8M   |   |   |
|                                   | Chipset                | Intel® Q170  |   | Intel® Q170/H110                            |
|                                   | BIOS                   | Insyde SPI 128Mbit                                   |   |   |
| GPU / AI Accelerator Card Support |                        | -  | Intel® movidius™ AI accelerator card (Opt.) (EC511) | Intel® movidius™ AI accelerator card (Opt.) |
| Memory                            | Technology             | Dual Channel DDR4 1866/2133MHz                       |   |   |
|                                   | Max. Capacity          | 32GB   |   |   |
|                                   | Socket                 | 2 SODIMM   |   |   |
| Storage                           |                        | 1x 2.5" SATA 3.0 Drive Bay,<br>1 mSATA-mini, 1 CFast | 2x 2.5" SATA 3.0 Drive Bay,<br>1 mSATA-mini         |   |
| Expansion                         | PCIe, PCI              | -  | 1 PCI or 1 PCIe x16                                 | 2 PCI + 1 PCIe x16 or<br>1 PCI + 2 PCIe x16 |
|                                   | Mini PCIe, M.2         | 1 Full mPCIe socket, 1 Half mPCIe socket             |   |   |
| Audio                             | Audio Codec            | Realtek ALC888                                       |   |   |
| Ethernet                          | Controller             | 1 Intel® I211, 1 Intel® I219                         | 1 Intel® I211, 4 Intel® I210, 1 Intel® I219         | 1 Intel® I211, 1 Intel® I219                |
| LED                               | Indicators             | Power, HDD LED                                       |   |   |
| I/O                               | Ethernet (GbE)         | 2  | 2 GbE + 4 PoE or 6 GbE                              | 2   |
|                                   | Serial                 | 4 RS-232/422/485                                     | 3 RS-232/422/485                                    | 6 RS-232/422/485                            |
|                                   | USB                    | 2 USB 2.0, 4 USB 3.2                                 | 4 USB 3.2   | 8 USB 3.2                                   |
|                                   | Display                | 1 VGA, 1 DVI (DVI-D signal), 1 HDMI/DP               |   |   |
|                                   | Audio                  | Mic-in, Line-out                                     |   |   |
|                                   | DIO                    | -  | 16-bit DIO  | 8-bit DIO                                   |
|                                   | Buttons                | Reset, Power Button                                  |   |   |
|                                   | Wi-Fi Antenna          | 2 Holes  | 4 Holes   | 3 Holes                                     |
| Power                             |                        | 9~36V DC-in  |   |   |
| Cooling                           |                        | Fanless  |   |   |
| OS Support                        |                        | Win7, Win8.1, Win10                                  |   |   |
| Mechanism                         | Construction           | Aluminum + SGCC                                      |   |   |
|                                   | Mounting               | Wall Mount   |   |   |
|                                   | Dimensions (W x H x D) | 235 x 63.2 x 221.2mm                                 | 235 x 102.5 x 222mm                                 | 235 x 153.8 x 222mm                         |
| Environment                       | Operating Temp.        |  | 0°C~50°C  |   |



| Model Name  |                        | EC170-EHL  | EC220/EC221-BT | EC210-BT   | EC200-BT         |
|-------------|------------------------|--|----------------|--|------------------|
| Platform    |                        | Atom   |                | Atom   |                  |
| System      | Processor              | Intel® Atom® Processors X Series                             |                | Intel® Atom® Processor E3800   |                  |
|             | Socket                 | BGA 1493   |                | BGA 1170   |                  |
|             | Max. Speed             | 3.0GHz   |                | 1.91GHz  |                  |
|             | CPU TDP                | 6/9/10/12W   |                | 10W  |                  |
|             | Cache                  | 1.5M   |                | 2M   |                  |
|             | Chipset                | -  |                | -  |                  |
|             | BIOS                   | AMI SPI 256Mbit (supports UEFI boot only)                    |                | AMI SPI 64Mbit   |                  |
| Memory      | Technology             | Dual channel DDR4 up to 3200MHz                              |                | Dual Channel DDR3L 1333MHz   |                  |
|             | Max. Capacity          | 32GB   |                | 8GB  |                  |
|             | Socket                 | 2 SODIMM   |                | 2 SODIMM   |                  |
| Storage     |                        | 1x SATA 3.0 connector for 1 x 2.5" SSD, 1 M.2 2242/2280/3052 |                | 1 or 2 x 2.5" SATA 2.0 Drive Bay, 1 mSATA (via full mPCIe)                             |                  |
| Expansion   | PCIe, PCI              | -  |                | 1 PCI  | -                |
|             | Mini PCIe, M.2         | 1 M.2 2242/2280/3052 B Key, 1 M.2 2230 E Key                 |                | 1 Full mPCIe   |                  |
|             | SIM                    | 1 Nano SIM   |                | -  |                  |
| Audio       | Audio Codec            | Realtek ALC888   |                | Realtek ALC888   |                  |
| Ethernet    | Controller             | 2 Intel® I225  |                | 2 Intel® I210AT  |                  |
| LED         | Indicators             | PWD, HDD LED   |                | Power, HDD, Alert LED  |                  |
| I/O         | Ethernet (GbE)         | 2x 2.5GHz RJ45   |                | 2  |                  |
|             | Serial                 | -  |                | 4 or 8 RS-232/422/485, 2 RS-232  |                  |
|             | USB                    | 2 USB 3.2 Gen2, 2 USB 3.2 Gen1                               |                | 1 USB 3.2, 5 or 7 USB 2.0  |                  |
|             | Display                | 1 HDMI, 1 DP++   |                | 1 VGA, 1 DVI-D (by model)  |                  |
|             | Audio                  | Line-out   |                | 1 Speaker-out  |                  |
|             | DIO                    | -  |                | 8-bit DIO / 16-bit DIO / 0   |                  |
|             | Buttons                | -  |                | Power, Reset Button  |                  |
|             | Wi-Fi Antenna          | -  |                | 2 Holes  |                  |
| Power       |                        | 9~36V DC-in  |                | 9~36V DC-in  |                  |
| Cooling     |                        | Fanless  |                | Fanless  |                  |
| OS Support  |                        | Win10 IoT Enterprise, Linux                                  |                | Win7, WES7, Win8.1, WES8, Win10, Linux(Opt.)   |                  |
| Mechanism   | Construction           | Aluminum + SGCC  |                | Aluminum + SGCC  |                  |
|             | Mounting               | Wall mount (mounting brackets and screws)                    |                | Wall/VESA mount  |                  |
|             | Dimensions (W x H x D) | 235 x 222 x 102.5 mm (not include wall mount bracket)        |                | 275 x 114 x 203 mm   | 275 x 94 x 203mm |
| Environment | Operating Temp.        | -5°C~60°C, -40°C~60°C  |                | 0°C~55°C (SSD/mSATA)<br>0°C~50°C (HDD)<br>-10°C~70°C (wide-temp SSD with EC200-BT6060) |                  |

# AI Inference/ Training System

GPU & High Performance CPU



## DFI Product x PEG

With a dedicated graphics card installed, the system enjoys maximum performance in both graphics and AI computing. Discrete graphics cards typically have more than an adequate number of cores and a higher bandwidth, as well as a large amount of video memory to handle both large-scale deep learning and high-intensity AI operations. To match the performance of the discrete graphics card, the powerful CPU is nothing but the must for I/O expandability and general-purpose applications.



RM641-CS

## Automation and Flaw Analysis



## DFI Product x MXM

Powers the same performance as its discrete counterpart, the MXM module allows more flexibility in layout, from size, weight to heat dissipation, achieves a more compact system. Systems with MXM module also enjoys the possibility of future upgrades and has no worries about the overall solution layout.

Supported MXM-compliant module: NVIDIA



EC300-CS

## Driver Assistance



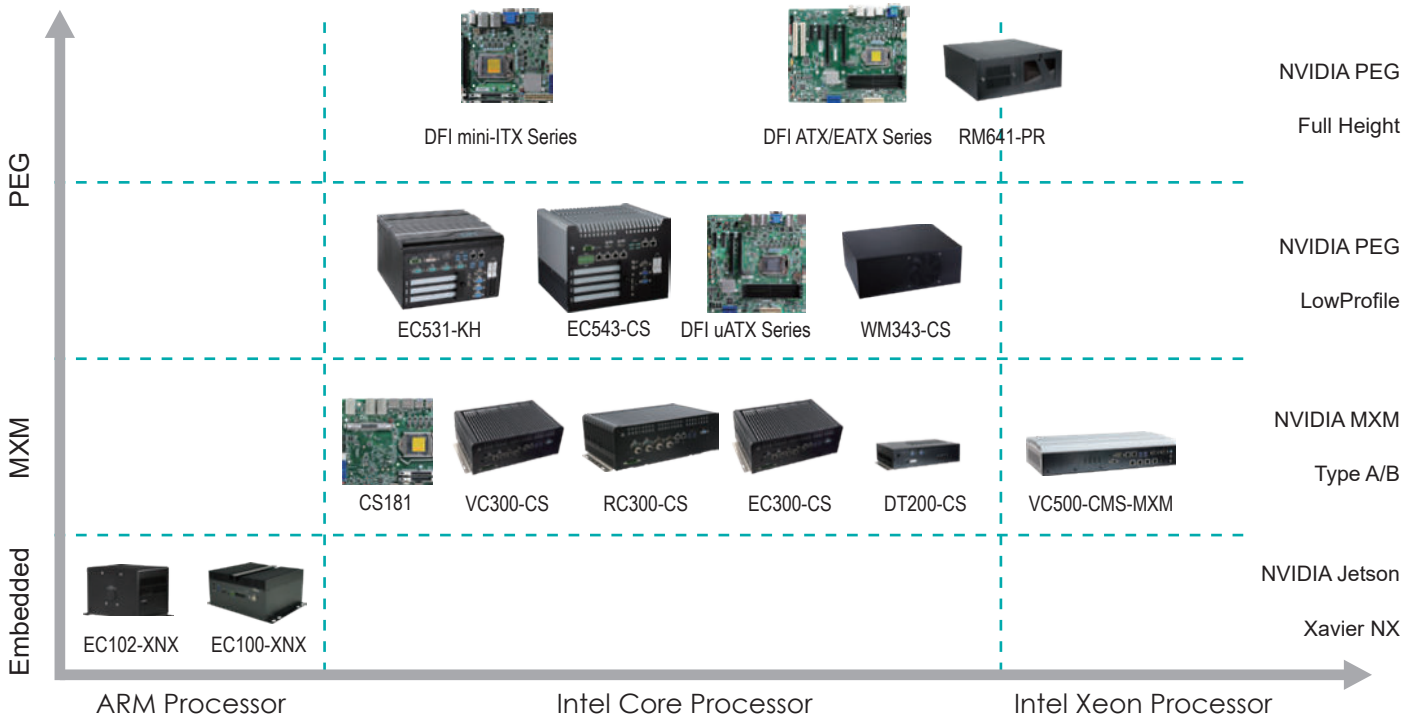
## DFI Product x Jetson

As a one-stop AI software and hardware solution, NVIDIA Jetson's high performance and energy efficiency make it easier for terminal devices to deploy edge-AI. No worries about how to implement Jetson modules in applications, DFI system products match perfectly in terms of mechanism, heat dissipation, and I/O.

Currently available: NVIDIA® Jetson Xavier™ NX module



### Automated Optical Inspection





| Model Name                        |                        | EC100-XNX   | EC102-XNX          |
|-----------------------------------|------------------------|---|--------------------|
| Platform                          |                        | NVIDIA® Jetson Xavier™ NX                                 |                    |
| System                            | Processor              | 6-core NVIDIA Carmel ARM® v8.2 64-bit CPU 6MB L2 + 4MB L3 |                    |
|                                   | Max. Speed             | 1.9GHz  |                    |
|                                   | CPU TDP                | 10/15W  |                    |
| GPU / AI Accelerator Card Support |                        | 384-core NVIDIA Volta™ GPU with 48 Tensor Cores           |                    |
| Memory                            | Technology             | LPDDR4 x 51.2GB/s   |                    |
|                                   | Max. Capacity          | 8 GB  |                    |
|                                   | Socket                 | Soldered on module  |                    |
| Storage                           |                        | 16GB e.MMC v5.1 on module                                 | Based on micro SD  |
| Expansion                         | SIM, microSD           | -   | 1 micro SD         |
|                                   | UART, I2C, GPIOs       | 1 UART, 2 I2C, 9 GPIOs                                    |                    |
| LED                               | Indicators             | Power, Recovery   |                    |
| I/O                               | GbE, PoE               | 1 GbE, 8 PoE  | 1 GbE              |
|                                   | Serial                 | Internal onboard 20-pin header                            |                    |
|                                   | USB                    | 1 USB 2.0 (Micro-B), 2 USB 3.2 (Type A)                   |                    |
|                                   | Display                | 1 HDMI 2.0  |                    |
|                                   | Buttons                | Power, Recovery   |                    |
| Power                             |                        | 54V/2.78A   | 12V/5A             |
| Cooling                           |                        | Fanless   | Heat sink with fan |
| OS Support                        |                        | Linux Ubuntu  |                    |
| Mechanism                         | Construction           | Metal + Aluminum  |                    |
|                                   | Mounting               | Wall Mount  |                    |
|                                   | Dimensions (W x H x D) | 190 x 80 x 175mm  | 91.4 x 70 x 76.6mm |
| Environment                       | Operating Temp.        | 0°C~60°C  |                    |



# 13th/12th/9th/8th Gen Intel Core Processor with MXM slot



| Model Name                        |                        | EC622-RPS   | EC180-CS  | DT200-CS   |
|-----------------------------------|------------------------|---|---|--|
| Platform                          |                        | Desktop   |   |  |
| System                            | Processor              | 13th/12th Gen Intel® Core™ Processor  | 9th/8th Gen Intel® Core™ Processor                                |  |
|                                   | Socket                 | LGA1700   | LGA 1151 Socket   |  |
|                                   | Max. Speed             | 3.3G  | 3.1GHz~4.0GHz   | 3.1GHz~4.6GHz  |
|                                   | CPU TDP                | 65W / 35W   | 35W   |  |
|                                   | Cache                  | 4/6/12/18/25/30M  | 6~12MB  |  |
|                                   | Chipset                | Intel® R680E  | Intel® H310/Q370  |  |
|                                   | BIOS                   | AMI SPI 256Mbit   | AMI SPI 128Mbit (supports UEFI/Legacy mode)                       | AMI SPI 128Mbit (supports UEFI/Legacy mode)                |
| GPU / AI Accelerator Card Support |                        | 1 PCIe x16 slot   | 1 MXM 3.1 slot, Type-A/B up to 60W                                | 1 MXM 3.1 slot, Type-A/B up to 110W                        |
| Memory                            | Technology             | Dual Channel DDR5 4800MHz   | DDR4 2400/2666MHz   |  |
|                                   | Max. Capacity          | 64GB  | up to 64GB  |  |
|                                   | Socket                 | 2 DDR5 SODIMM   | 2 SODIMM  |  |
| Storage                           |                        | 1 M.2 2242/2280   | 1x SATA 3.0 connector for 1 x 2.5" SSD,<br>1 M.2 2242/2280 (Q370) | 1x SATA 3.0 connector for 1 x 2.5" SSD,<br>1 M.2 2242/2280 |
| Expansion                         |                        | 1 M.2 2230 E key,<br>1 M.2 3042/3052 B key,<br>2 M.2 2242/2280 M key,<br>1 M.2 3042 A Key, 1 SIM,<br>1 Full mPCIe,<br>1 PCIe x16(PCle x16 signal),<br>1 PCIe x8(PCle x4 signal) | 1 M.2 2242/2280 M key, 1 M.2 3052 B key,<br>1 M.2 2230 E key      |  |
| Audio                             | Audio Codec            | N/A   | Realtek ALC888S-VD2-GR  |  |
| Ethernet                          | Controller             | 1 Intel® i219, 3 Intel® i210, 2 Intel® i226   | 1 Intel® i219, 3 Intel® i210                                      | 1 Intel® i219, 3 Intel® i211                               |
| LED                               | Indicators             | Status, HDD LED   | PWD, HDD LED  |  |
| I/O                               | Ethernet (GbE)         | 4 GbE, 2 2.5GbE<br>or 2 GbE, 2 2.5GbE, 2 PoE (Opt.)   | 4   |  |
|                                   | Serial                 | 2 RS-232/422/485, 8 RS-232  | 2 RS-232/422/485  | 2 RS-232   |
|                                   | USB                    | 5 USB 3.2 Gen2, 1 Type-C  | 4 USB 3.2   | 4 USB 3.2, 6 USB 2.0                                       |
|                                   | Display                | 1 VGA, 1 DP+/HDMI (auto detection)  | 1 DP/HDMI (auto-detection), 4 DP (from MXM)                       | 1 HDMI (auto-detection), 4 DP (from MXM)                   |
|                                   | DIO                    | 8bits (share with COM1 DB9 connector)   | -   |  |
|                                   | Buttons                | Power, Reset  | Power   |  |
|                                   | Antenna                | 4 Holes   | 6 holes   |  |
|                                   | Audio                  | N/A   | Line-out, Mic-in  |  |
| Power                             |                        | 9~36V DC-in   | 19V DC-in   |  |
| Cooling                           |                        | Fanless   | Fanless   | Fan  |
| OS Support                        |                        | Win10 IoT Enterprise, Linux(Opt.)   | Win10 IoT Enterprise, Linux                                       |  |
| Mechanism                         | Construction           | Metal + Aluminum  | Aluminum + SGCC   |  |
|                                   | Mounting               | Wall Mount  | Wall mount (mounting brackets and screws)                         |  |
|                                   | Dimensions (W x H x D) | 249.5 x 85 x 223 mm   | 250 x 180 x 76mm<br>(not include wall mount bracket)              | 320 x 220 x 87mm<br>(not include wall mount bracket)       |
| Environment                       | Operating Temp.        | 35W CPU: -20°C ~ 70°C<br>65W CPU: -20°C ~ 50°C<br>(for wide temperature M.2 SSD,<br>w/ 0.7m/sec air flow)   | 0°C~45°C  | 0°C~55°C   |

## 9th/8th/7th/6th Gen Intel Core Processor



| Model Name                        |                           | EC300-CS  | RM641-CS  | RM641-SD  |
|-----------------------------------|---------------------------|---|---|---|
| Platform                          |                           | Desktop   | Rackmount Box PC  |   |
| System                            | Processor                 | 9th/8th Gen Intel® Core™ Processor  | 9th/8th Gen Intel® Core™ /Pentium®/Celeron® Processors              | 7th/6th Gen Intel® Core™ Processors                                   |
|                                   | Socket                    | LGA 1151  | LGA 1151  |   |
|                                   | Max. Speed                | 1.8~2.6GHz  | 2.9GHz~4.7GHz   | 2.4GHz~4.0GHz   |
|                                   | CPU TDP                   | 35/65W  | 35/54/65/71/80/95W  | 35/47/65W   |
|                                   | Cache                     | 9/12M   | 2/4/6/8/9/12M   | 3/4/6/8M  |
|                                   | Chipset                   | Intel® Q370   | Intel® C246   | Intel® Q170   |
|                                   | BIOS                      | AMI SPI 128Mbit   | Insyde SPI 128Mbit  |   |
| GPU / AI Accelerator Card Support |                           | MXM 3.1 Type A/B:<br>P1000, RTX3000   | -   |   |
| Memory                            | Technology                | Dual Channel DDR4 2666/2400MHz  | Dual Channel DDR4 2400/2666MHz<br>(ECC/non ECC)                     | Dual Channel DDR4 1866/2133MHz  |
|                                   | Max. Capacity             | 64GB  | 128GB   | 64GB  |
|                                   | Socket                    | 2 SODIMM  | 4 UDIMM   |   |
| Storage                           |                           | 4 Swappable 2.5" SSD Storage Bays, 1 M.2 2280                                 | 3x 5.25" Optical drive bays,<br>1x 3.5" SATA 3.0 drive bay          | 3x 5.25" Optical Drive Bays,<br>1x 3.5"/2.5" SATA 3.0 Drive Bay       |
| Expansion                         |                           | 1 Half mPCIe, 2 Full mPCIe,<br>1 M.2 3042/3052 B Key, 1 M.2 2280 M Key, 2 SIM | 1 PCIe x16, 3 PCIe x4, 2 PCI,<br>1 Mini PCIe, 1 M.2 2242/2280 M key | 2 PCIe x16, 2 PCIe x4, 3 PCI  |
| Audio                             | Audio Codec               | Realtek ALC888  | Realtek ALC887 (ALC888 as Opt.)                                     | Realtek ALC888S-VD2-GR  |
| Ethernet                          | Controller                | 5 Intel® I210, 1 Intel® I219  | 1 Intel® I211, 1 Intel® I219  |   |
| LED                               | Indicators                | Power, Storage, POE LED   | Power, HDD LED  |   |
| I/O                               | Ethernet (GbE)            | 2 GbE, 4 POE  | 2   |   |
|                                   | Serial                    | 2 RS-232/422/485 (DB9),<br>2 RS-232/422/485 onboard                           | 1 RS-232/422/485  |   |
|                                   | USB                       | 4 USB 3.2, 2 USB 2.0  | 4 USB 3.2, 2 or 4 USB 2.0   |   |
|                                   | Display                   | 1 VGA, 1 HDMI, 1 DP++   | 1 VGA, 2 DP++   | 1 VGA, 1 DVI-I (DVI-D signal), 1 HDMI                                 |
|                                   | DIO                       | 1 DB-9 8 bit isolated DI,<br>1 DB-9 8 bit isolated DO                         | -   |   |
|                                   | Buttons                   | Power, Reset  | Power, Reset  |   |
|                                   | Antenna                   | 7 holes   | -   |   |
|                                   | Audio                     | Line-out, Mic-in  | Line-out, Mic-in, Line-in(Opt.)                                     |   |
| Power                             |                           | 12V DC  | ATX PS/2 Power Supply 500W<br>AC Power Input : 90~264V              |   |
| Cooling                           |                           | Fanless   | 2 x 92cm System Fan with Quick Access Filter                        |   |
| OS Support                        |                           | Win10 IoT Enterprise, Linux Ubuntu  | Win10 IoT Enterprise, Linux   | Win7/WES7, Win8.1, Win10 IoT Enterprise,<br>Debian 8, CentOS 7, Linux |
| Mechanism                         | Construction              | Metal + Aluminum  | SECC  |   |
|                                   | Mounting                  | Wall Mount  | Flexible Hold Down Bar  |   |
|                                   | Dimensions<br>(W x H x D) | 340.5 x 132 x 223mm   | 483 x 177 x 451mm   |   |
| Environment                       | Operating Temp.           | -20°C~70°C  | 0°C~45°C  |   |

## 2nd/1st Gen Intel Xeon Scalable Processor



| Model Name                        |                        | RM840-PR810   |
|-----------------------------------|------------------------|---|
| Platform                          |                        | Rackmount Box PC  |
| System                            | Processor              | 2nd/1st Gen Intel® Xeon® Scalable Processor Family  |
|                                   | Socket                 | LGA 3647  |
|                                   | Max. Speed             | 3.0~3.9GHz  |
|                                   | CPU TDP                | 70/85/105/125/150W  |
|                                   | Cache                  | 11/13.75/16.5/19.25/22/24.75/27.5/30.25/35.75M  |
|                                   | Chipset                | Intel® C622   |
|                                   | BIOS                   | Insyde SPI 256Mbit  |
| GPU / AI Accelerator Card Support |                        | -   |
| Memory                            | Technology             | 12 Channel DDR4 2133/2400/2666/2933 MHZ   |
|                                   | Max. Capacity          | 384GB   |
|                                   | Socket                 | 12 RDIMM  |
| Storage                           |                        | 2x 5.25" (1x 2.5"), 1x 3.5" (1x 2.5"), 1 M.2 2280   |
| Expansion                         |                        | 4 PCIe x16, 1 PCIe x8, 1 x PCI,<br>1 M.2 2280 M key,<br>1 BMC Module slot for SEM2500/2510 (IPMI),<br>1 100GbE slot (x4 + x8) for EXT-100GbE proprietary module |
| Audio                             | Audio Codec            | Realtek ALC888  |
| Ethernet                          | Controller             | 2 Intel® I210, 1 Intel® x557-AT2  |
| LED                               | Indicators             | Power, HDD LED  |
| I/O                               | Ethernet (GbE)         | 2 GbE, 2 10GbE x557-AT2,<br>IPMI 2.0: 1 share w/ i210AT (Opt.)  |
|                                   | Serial                 | 1 RS-232  |
|                                   | USB                    | 4 USB 3.2, 2 USB 2.0  |
|                                   | Display                | 1 VGA (Opt.)  |
|                                   | DIO                    | -   |
|                                   | Buttons                | Power, Reset  |
|                                   | Antenna                | -   |
| Audio                             | Line-out, Mic-in       |   |
| Power                             |                        | ATX PS/2 Power Supply 650W  |
| Cooling                           |                        | 2 Fans (90mm = 51CFM)   |
| OS Support                        |                        | Win 10 IoT Enterprise,<br>Windows Server 2016&2019, Linux   |
| Mechanism                         | Construction           | Heavy Industrial Steel  |
|                                   | Mounting               | Flexible Hold Down Bar  |
|                                   | Dimensions (W x H x D) | 483 x 177 x 510mm   |
| Environment                       | Operating Temp.        | 0°C~40°C  |

# Mini-ITX/ATX System & Chassis

Scalable & Flexible Solutions



## Features

Our IPC systems are comprising of industrial chassis and our latest Intel®/AMD® platform-based embedded boards (ATX, microATX, Mini-ITX) which provide various selections from our embedded computing portfolio with the benefits of customization flexibility.

With high integration, wide compatibility, and outstanding product longevity, the IPC systems are the ideal solutions for a wide range of embedded applications.

### Explore DFI's range of Embedded and IoT Chassis

#### ST102

- MB: Mini-ITX
- W/O PSU
- 1 x 2.5" storage



Stand Type

#### DT122

- MB: Mini-ITX
- W/ Flex ATX PSU
- 2 x 2.5" or 1 x 3.5" storage
- 1 x PCIe (Opt.)



Desktop Type

#### WM120

- MB: Mini-ITX
- W/ O PSU
- 1 x 2.5" storage
- 1 x PCIe (Opt.)



Wall mount Type

#### WM342

- MB: Micro-ATX
- W/ Flex ATX PSU
- 2 x 2.5" storage
- 2 x PCIe



Wall mount Type

#### WM343

- MB: Micro-ATX
- W/ Flex ATX PSU
- 1 or 2 x 2.5" / 3.5" storage
- 4 x PCIe



Wall mount Type

#### RM641

- MB: ATX
- W/ ATX PSU
- 7 x PCIe



Rack mount-4U Type

#### RM620

- MB: ATX
- Redundant PSU support
- 7 x PCIe support low profile only



Rack mount -2U Type

#### RM645

- MB: ATX
- Redundant PSU support
- 7 x PCIe, Full height card available



Rack mount-4U Type

#### RM840

- MB: ETX
- ATX PS/2
- Up to 10 x PCIe



Rack mount-4U Type

Explore DFI's range of Embedded and IoT Chassis



| Model Name           | ST102               | DT122                | WM120                |
|----------------------|---------------------|----------------------|----------------------|
| Mount type           | Wall mount          | Wall mount           | Wall mount           |
| Dimension (mm)       | 219 x 75.15 x 229.7 | 300 x 75 x 217       | 224 x 88 x 206       |
| PSU type             | DC-in to MB         | Flex ATX             | DC-in to MB          |
| MB form available    | Mini-ITX            | Mini-ITX             | Mini-ITX             |
| PCIE slots available | N/A                 | 1 x PCIe slot (opt.) | 1 x PCIe slot (opt.) |
| Storage support      | 1 x 2.5"            | 2 x 2.5" or 1 x 3.5" | 1 x 2.5"             |



| Model Name           | WM342                 | WM343                | RM620                           |
|----------------------|-----------------------|----------------------|---------------------------------|
| Mount type           | Wall mount            | Wall mount           | 2U Rack Mount                   |
| Dimension (mm)       | 306.6 x 132.1 x 301.9 | 349 x 140.2 x 290.9  | 482.6 x 495.8 x 88              |
| PSU type             | Flex ATX              | Flex ATX             | ATX/Mini Redundant              |
| MB form available    | Mini-ITX / micro-ATX  | Mini-ITX / micro-ATX | ATX                             |
| PCIE slots available | 2 x PCIe slots        | 4 x PCIe slots       | 7 PCIe slots (Low-profile only) |
| Storage support      | 2 x 2.5"              | 1 x 2.5"/3.5"        | 4 x 2.5" + 2 x 3.5"             |



| Model Name           | RM641           | RM645                 | RM840               |
|----------------------|-----------------|-----------------------|---------------------|
| Mount type           | 4U Rack Mount   | 4U Rack Mount         | 4U Rack Mount       |
| Dimension (mm)       | 483 x 177 x 451 | 481.6 x 470.8 x 175.6 | 483 x 177 x 510     |
| PSU type             | ATX PS/2        | ATX/Mini Redundant    | ATX PS2             |
| MB form available    | ATX             | ATX                   | ATX/ EATX           |
| PCIE slots available | 7 x PCIe slots  | 7 x PCIe slots        | 7 / 10 x PCIe slots |
| Storage support      | 1 x 3.5"        | 8 x 2.5"              | 5 x 3.5"            |

# 12th/10th Gen Intel Core Processor



Contact sales representative for availability.

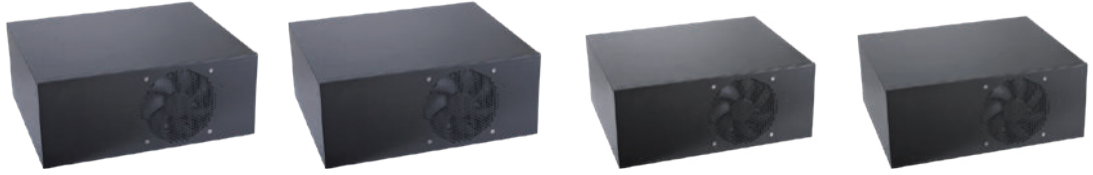
| Model Name  |   | WM343-ADS  | WM120-CMS   | WM343-CMS                                 |
|-------------|---|--|---|---|
| Platform    |   | Wallmount IPC  |   |   |
| System      | Processor   | 12th Gen Intel® Core™ Processor  | 10th Gen Intel® Core™ Processor   |   |
|             | Socket  | LGA 1700   | LGA 1200  |   |
|             | Max. Speed  | 2.4GHz~5.0GHz  | 3.0~4.5GHz  | 3.0~4.7GHz                                |
|             | CPU TDP   | 35/46/60/65/125W   | 35/65W  | 35/58/65/125W                             |
|             | Cache   | 4/6/12/18/25/30M   | 2/4/6/12/16/20M   |   |
|             | Chipset   | Intel® R680E/Q670E   | Intel® Q470E  | Intel® Q470E/H420E                        |
|             | BIOS  | AMI SPI 256Mbit  | AMI SPI 128Mbit   | AMI SPI 256Mbit                           |
| Memory      | Technology  | Dual Channel DDR4 3200 MHz (R680E supports ECC)                            | Dual Channel DDR4 2400/2666/2933 MHz  |   |
|             | Max. Capacity   | 128GB  | 128GB   | 64/128GB                                  |
|             | Socket  | 4 UDIMM  | 2 SODIMM  | 2 or 4 UDIMM                              |
| Storage     | 1 or 2x 3.5"/2.5" SATA 3.0 drive bays, 1x 5.25" Optical drive bay, 2 M.2 2242/2260/2280 | 1x 2.5" SATA 3.0 SSD, 1 M.2 2280   | 1 or 2x 3.5"/2.5" SATA 3.0 drive bays, 1x 5.25" Optical drive bay, 1 M.2 2242/2260/2280 |   |
| Expansion   | 1 PCIe x16, 2 PCIe x4, 1 PCIe x4, 2 M.2 2242/2260/2280 M key, 1 M.2 2230 E key          | 1 PCIe x16, 1 M.2 2230 E key, 1 M.2 2280 M key, 1 M.2 3042/3052 B key, SIM | 1 PCIe x16, 1 PCIe x4, 2 PCI 1 M.2 2242/2260/2280 M Key, 1 M.2 2230 E Key               |   |
| Audio       | Audio Codec   | Realtek ALC888   |   |   |
| Ethernet    | Controller  | 1 x Intel® I226-LM PCIe, 1 x Intel® I226-V PCIe, 2 x Intel® x550-AT2       | 1 Intel® I219LM PHY, 1 Intel® I211AT PCIe   |   |
| LED         | Indicators  | Power, HDD LED   |   |   |
| I/O         | Ethernet (GbE)  | 2x 2.5GbE, 2x 10GbE  | 2   |   |
|             | Serial  | 2 RS-232/422/485   | -   | 1 RS-232/422/485                          |
|             | USB   | 4 USB 3.2 Gen 2, 4 USB 3.2 Gen 1   | 8 USB 3.2 Gen2, 4 USB 3.2   | 2 USB 3.2 Gen2, 2 USB 3.2 Gen1, 2 USB 2.0 |
|             | Display   | 1 VGA, 2 DP++, 1 HDMI 2.0a   | 2 DP++  | 1 VGA, 1 DP++, 1 HDMI                     |
|             | DIO   | 8-bit DIO  | -   | -   |
|             | Buttons   | Power, Reset   |   |   |
|             | Wi-Fi Antenna   | -  |   |   |
|             | Audio   | Line-out, Mic-in, Line-in(Opt. MOQ required)                               | -   | Line-out, Mic-in                          |
| Power       | 250W/350W/500W FLEX ATX   | 24V DC-in / 15 to 36V DC-in  | 250W/500W FLEX ATX  |   |
| Cooling     | 1x 12cm System Fan  | 1x 8cm System Fan, w/ replaceable air filter                               | 1x 12cm System Fan  |   |
| OS Support  | Win10 IoT Enterprise, Linux   | Win10 IoT Enterprise   | Win10, Linux  |   |
| Mechanism   | Construction  | Sheet Metal  |   |   |
|             | Mounting  | Wall Mount   |   |   |
|             | Dimensions (W x H x D)  | 349 x 140.2 x 290.9mm  | 224 x 88 x 206mm  | 349 x 140.2 x 290.9mm                     |
| Environment | Operating Temp.   | 0°C~45°C   | -5°C~45°C   | 0°C~45°C                                  |

## 9th/8th Gen Intel Core Processor



| Model Name  |  | WM343-CS330  | WM343-CS331   | WM343-CS332  | WM343-CS350                                     |
|-------------|--|--|---|--|---|
| Platform    |  | Wallmount IPC  |   |  |   |
| System      | Processor  | 9th/8th Gen Intel® Core™ Processor   |   |  |   |
|             | Socket   | LGA 1151   |   |  |   |
|             | Max. Speed   | 2.9~5.0GHz   |   |  |   |
|             | CPU TDP  | 35/54/58/65/95W  | 35/54/58/65/71/80/95W   |  |   |
|             | Cache  | 2/4/6/9/12/16M   | 2/4/6/8/9/12/16M  |  |   |
|             | Chipset  | Intel® H310/Q370   | Intel® Q370/C246  |  |   |
|             | BIOS   | AMI SPI 128Mbit  |   |  |   |
| Memory      | Technology   | Dual Channel DDR4 2400/2666 MHz  |   |  |   |
|             | Max. Capacity  | 64 or 128GB  |   |  |   |
|             | Socket   | 2 or 4 DIMM  |   |  |   |
| Storage     | 1 or 2x 3.5"/2.5" SATA 3.0 drive bays,<br>1x 5.25" Optical drive bay,<br>1 mSATA | 1 or 2x 3.5"/2.5" SATA 3.0 Drive Bays,<br>1x 5.25" Optical Drive Bay,<br>1 mSATA, 1 M.2 2280 | 1 or 2x 3.5"/2.5" SATA 3.0 Drive Bays,<br>1x 5.25" Optical Drive Bay,<br>1 M.2 2280 |  |   |
| Expansion   | PCIe, PCI  | 1 PCIe x16, 1 PCIe x4, 2 PCI   | 2 PCIe x16, 2 PCIe x4   | 1 PCIe x16, 2 PCIe x4, 1 PCI                                       | 2 PCIe x16, 2 PCIe x4                           |
|             | Mini PCIe, M.2   | 1 Full mPCIe (Q370)  | 1 mPCIe,<br>1 M.2 2242/2260/2280 M Key  | 1 M.2 2242/2280 M Key,<br>1 M.2 2230 E Key                         | 1 M.2 2242/2260/2280 M Key,<br>1 M.2 2230 E Key |
| Audio       | Audio Codec  | Realtek ALC888   |   | Realtek ALC262-VC2   | Realtek ALC888                                  |
| Ethernet    | Controller   | 1 Intel® I211, 2 Intel® I219   | 1 Intel® I211, 1 Intel® I219  | 1 Intel® I219, 1 Intel® I211,<br>2 Intel® I211(Opt., MOQ required) | 1 Intel® I211, 1 Intel® I219                    |
| LED         | Indicators   | Power, Storage LED   | Power, HDD LED  |  |   |
| I/O         | Ethernet (GbE)   | 3  | 2   | 2 or 4   | 2   |
|             | Serial   | 1 RS-232/422/485   |   |  |   |
|             | USB  | 4 USB 3.2 Gen 1, 2 USB 2.0   | 2 USB 3.2 Gen 2, 2 USB 3.2 Gen 1,<br>2 USB 2.0                                      | 4 USB 3.2 Gen 1, 2 USB 2.0   | 2 USB 3.2 Gen 2, 2 USB 3.2 Gen 1,<br>2 USB 2.0  |
|             | Display  | 1 VGA, 1 DVI-I (DVI-D signal),<br>1 DP++   | 1 HDMI, 1 DVI-I (DVI-D signal),<br>1 DP++   | 1 VGA, 2 DP++  | 1 HDMI, 1 DVI-I (DVI-D signal),<br>1 DP++       |
|             | Audio  | Line-out, Mic-in, Line-in(Opt.)  |   |  |   |
|             | PS/2   | 1 PS/2 mini-din  |   |  |   |
|             | Buttons  | Power, Reset Button  |   |  |   |
| Power       | 250W FLEX ATX  |  |   |  |   |
| Cooling     | 1x 12cm System Fan   |  |   |  |   |
| OS Support  | Win10, Linux   |  |   |  |   |
| Mechanism   | Construction   | Sheet Metal  |   |  |   |
|             | Mounting   | Wall Mount   |   |  |   |
|             | Dimensions (W x H x D)   | 349 x 140.2 x 290.9mm  |   |  |   |
| Environment | Operating Temp.  | 0°C~45°C   |   |  |   |

## 7th/6th Gen Intel Core Processor



| Model Name  |                        | WM343-KD331  | WM343-KD330  | WM342-KD331                           | WM342-KD330                  |
|-------------|------------------------|--|--|---------------------------------------|------------------------------|
| Platform    |                        | Wallmount IPC  |  | Wallmount IPC                         |                              |
| System      | Processor              | 7th/6th Gen Intel® Core™ Processor                                   |  | 7th/6th Gen Intel® Core™ Processor    |                              |
|             | Socket                 | LGA 1151   |  | LGA 1151                              |                              |
|             | Max. Speed             | 3.8~4.2GHz   |  | 3.8~4.5GHz                            |                              |
|             | CPU TDP                | 65/80W   | 65W  | 65/80/91W                             | 65/91W                       |
|             | Cache                  | 3/6/8M   |  | 3/6/8M                                |                              |
|             | Chipset                | Intel® C236/Q170   | Intel® Q170/H110   | Intel® C236/Q170                      | Intel® Q170/H110             |
|             | BIOS                   | Insyde SPI 128Mbit   |  | Insyde SPI 128Mbit                    |                              |
| Memory      | Technology             | Dual Channel DDR4 2133/2400 MHz                                      |  | Dual Channel DDR4 2133/2400 MHz       |                              |
|             | Max. Capacity          | 64GB   | 64GB or 32GB   | 64GB                                  | 64GB (Q170), 32GB (H110)     |
|             | Socket                 | 4 DIMM (C236 Supports ECC)   | 2 or 4 DIMM  | 4 DIMM (C236 Supports ECC)            | 2 or 4 DIMM                  |
| Storage     |                        | 1 or 2x 3.5"/2.5" SATA 3.0 Drive Bays,<br>1x 5.25" Optical Drive Bay | 1 or 2x 3.5"/2.5" SATA 3.0 Drive Bays,<br>1x 5.25" Optical Drive Bay,<br>1 mSATA (Q170 Only) | 2x 2.5" SATA 3.0 Drive Bays           |                              |
| Expansion   | PCIe, PCI              | 2 PCIe x16, 2 PCIe x4  | 1 PCIe x16, 1 PCIe x4, 1 PCI   | 1 PCIe x16, 1 PCIe x4                 | 1 PCIe x16, 1 PCI            |
|             | Mini PCIe, M.2         | 1 M.2 2280 M Key   | 1 Full mPCIe (Q170 Only)   | -                                     |                              |
| Audio       | Audio Codec            | Realtek ALC888S-VD2-GR   |  | Realtek ALC888S-VD2-GR                |                              |
| Ethernet    | Controller             | 3 Intel® I211, 1 Intel® I219   | 1 Intel® I211, 1 Intel® I219   | 3 Intel® I211, 1 Intel® I219          | 1 Intel® I211, 1 Intel® I219 |
| LED         | Indicators             | Power, Storage LED   |  | Power, Storage LED                    |                              |
| I/O         | Ethernet (GbE)         | 4  | 2  | 4                                     | 2                            |
|             | Serial                 | 1 RS-232/422/485   |  | 1 RS-232/422/485                      |                              |
|             | USB                    | 4 USB 3.2, 2 USB 2.0   |  | 4 USB 3.2, 2 USB 2.0                  |                              |
|             | Display                | 1 VGA, 1 DVI-I (DVI-D signal), 1 DP++                                |  | 1 VGA, 1 DVI-I (DVI-D signal), 1 DP++ |                              |
|             | Audio                  | -  | Line-out, Mic-in   | -                                     | Line-out, Mic-in             |
|             | PS/2                   | 1 PS/2 mini-din  |  | 1 PS/2 mini-din                       |                              |
|             | Buttons                | Power, Reset Button  |  | Power, Reset Button                   |                              |
| Power       |                        | 250W/400W FLEX ATX   |  | 250W FLEX ATX                         |                              |
| Cooling     |                        | 1 System Fan   |  | 1 System Fan                          |                              |
| OS Support  |                        | Win10, Linux   |  | Win10 IoT Enterprise                  |                              |
| Mechanism   | Construction           | Sheet Metal  |  | Sheet Metal                           |                              |
|             | Mounting               | Wall Mount   |  | Wall Mount                            |                              |
|             | Dimensions (W x H x D) | 349 x 140.2 x 290.9mm  |  | 306.6 x 132.1 x 301.9mm               |                              |
| Environment | Operating Temp.        |  | 0°C~45°C   |                                       |                              |



## 6th Gen Intel Core Processor



| Model Name  |                        | WM343-SD331  | WM343-SD330  |
|-------------|------------------------|--|--|
| Platform    |                        | Wallmount IPC  |  |
| System      | Processor              | 6th Gen Intel® Core™ Processor                                       |  |
|             | Socket                 | LGA 1151   |  |
|             | Max. Speed             | 2.6~4.0GHz   |  |
|             | CPU TDP                | 35/65/80W  | 35/65W   |
|             | Cache                  | 2/3/4/6/8M   |  |
|             | Chipset                | Intel® C236/Q170   | Intel® Q170/H110   |
| BIOS        |                        | Insyde SPI 128Mbit   |  |
| Memory      | Technology             | Dual Channel DDR4 1866/2133MHz                                       |  |
|             | Max. Capacity          | 64GB   | 32 or 64GB   |
|             | Socket                 | 4 ECC/non-ECC DIMM   | 2 or 4 DIMM  |
| Storage     |                        | 1 or 2x 3.5"/2.5" SATA 3.0 Drive Bays,<br>1x 5.25" Optical Drive Bay | 1 or 2x 3.5"/2.5" SATA 3.0 Drive Bays,<br>1x 5.25" Optical Drive Bay,<br>1 mSATA (Q170 Only) |
| Expansion   | PCIe, PCI              | 2 PCIe x16, 2 PCIe x4  | 1 PCIe x16, 1 PCIe x4, 2 PCI   |
|             | Mini PCIe, M.2         | -  | 1 Full mPCIe (Q170 Only)   |
| Audio       | Audio Codec            | Realtek ALC888S-VD2-GR   |  |
| Ethernet    | Controller             | 1 Intel® I210, 1 Intel® I219   |  |
| LED         | Indicators             | Power, HDD LED   |  |
| I/O         | Ethernet (GbE)         | 2  |  |
|             | Serial                 | 1 RS-232/422/485   |  |
|             | USB                    | 4 USB 3.2, 2 USB 2.0   |  |
|             | Display                | 1 VGA, 1 DVI-I (DVI-D signal), 1 DP++                                |  |
|             | Audio                  | Mic-in, Line-out, Line-in (Opt.)                                     |  |
|             | PS/2                   | 1 PS/2 mini-din  |  |
|             | Buttons                | Power Button   |  |
| Power       |                        | 250W FLEX ATX  | 250W FLEX ATX  |
| Cooling     |                        | 1 System Fan   |  |
| OS Support  |                        | Win7, WES7, Win8.1, Win10 IoT Enterprise, Debian, CentOS, Linux      |  |
| Mechanism   | Construction           | Sheet Metal  |  |
|             | Mounting               | Wall Mount   |  |
|             | Dimensions (W x H x D) | 349 x 140.2 x 290.9mm  |  |
| Environment | Operating Temp.        | 0°C~45°C   |  |

## 9th/8th/7th/6th Gen Intel Core Processor & AMD Ryzen Embedded V1000/R1000 Series



| Model Name  |                        | ST102-CS   | ST102-SD   | DT122-SD   | DT122-GH   |
|-------------|------------------------|--|--|--|--|
| Platform    |                        | Stand IPC  |  | Desktop IPC  |  |
| System      | Processor              | 9th/8th Gen Intel® Core™ Processor                                     | 7th/6th Gen Intel® Core™ Processor                         | 7th/6th Gen Intel® Core™ Processor   | AMD® Ryzen™ Embedded V1000/R1000 Series                    |
|             | Socket                 | LGA 1151   |  | LGA 1151   | Onboard  |
|             | Max. Speed             | 2.9~4.0GHz   | 2.4~3.8GHz   | 2.4~3.8GHz   | 3.2~3.8GHz   |
|             | CPU TDP                | 35W  |  | 35W  | 12~25 or 35~54W  |
|             | Cache                  | 2/4/6/9/12M  | 2/3/4/6/8M   | 2/3/4/6/8M   | 1/2M   |
|             | Chipset                | Intel® H310/Q370   | Intel® H110  | Intel® Q170/H110   | -  |
|             | BIOS                   | AMI SPI 128Mbit  | AMI SPI 64Mbit   | Insyde SPI 128Mbit   | AMI BIOS 64Mbit  |
| Memory      | Technology             | Dual Channel DDR4 2666MHz  | Dual Channel DDR4 1866/2133/2400MHz                        | Dual Channel DDR4 1866/2133MHz   | Dual Channel DDR4 3200MHz                                  |
|             | Max. Capacity          | 32GB   | 4GB/8GB  | 32GB   |  |
|             | Socket                 | 2 SODOMM   |  | 2 SODIMM   |  |
| Storage     |                        | 1x 2.5" SATA 3.0 Drive bay, 1 mSATA, 1 M.2 2280, 1 Slim ODD Bay (Opt.) | 1x 2.5" SATA 3.0 Drive bay, 1 mSATA, 1 Slim ODD Bay (Opt.) | 1x 3.5" or 2x 2.5" SATA 3.0 Drive Bay, 1 mSATA(Opt.), 1 Slim ODD Bay(Opt.) | 1x 3.5" or 2x 2.5" SATA 3.0 Drive Bay, 1 M.2 2280 NVME SSD |
| Expansion   |                        | 1 Full mPCIe, 1 M.2 2280 M Key, 1 M.2 2230 E Key                       | -  | 1 PCIe x16 or 1 PCI, 1 Half mPCIe or 1 Full mPCIe                          | 1 PCIe or 1 PCI, 1 M.2 2280 M Key                          |
| Audio       | Audio Codec            | Realtek ALC888S-VD2-GR   | Realtek ALC888   | Realtek ALC888S-VD2-GR   | Realtek Audio Codec with 5.1 Channel                       |
| Ethernet    | Controller             | 1 Intel® I210, 1 Intel® I219   |  | 1 Intel® I210/I211, 1 Intel® I219  | 2 Realtek Ethernet   |
| LED         | Indicators             | Power, HDD LED   |  | Power, HDD LED   |  |
| I/O         | Ethernet (GbE)         | 2  |  | 2  |  |
|             | Serial                 | -  |  | 1 RS-232   | 1 RS-232/422/485, 1 RS-232                                 |
|             | USB                    | 4 USB 3.2, 2 USB 2.0   |  | 4 USB 3.2, 2 USB 2.0   | 2 USB 3.2, 2 USB 2.0                                       |
|             | Display                | 2 DP++, 1 HDMI   | 1 DVI-I (DVI-D signal), 1 HDMI/DP                          | 1 VGA, 1 DVI-I (DVI-D signal), 1 DP++                                      | 3 or 4 DP++  |
|             | DIO                    | -  |  | -  |  |
|             | Buttons                | Power Button   |  | Power, Reset   | Power  |
|             | Wi-Fi Antenna          | 2  | -  | -  |  |
|             | Audio                  | Line-out, Mic-in   |  | Line-out, Mic-in, Line-in(Opt.)  | Line-out, Mic-in, Line-in                                  |
| Power       |                        | 12V DC-In Jack   |  | 250W Flex ATX  | 150W FLEX ATX  |
| Cooling     |                        | 1 System Fan, 1 CPU Fan  |  | 1 System Fan, 1 CPU Fan  |  |
| OS Support  |                        | Win10 IoT Enterprise   |  | Win7, WES7, Win8.1, Win10 IoT Enterprise, Debian 8, CentOS 7, Linux        | Win10, Linux   |
| Mechanism   | Construction           | Metal chassis + Aluminum front bezel<br>Kensington lock                | Sheet Metal & Aluminum                                     | Front Bezel aluminum + Chassis Sheet Metal                                 |  |
|             | Mounting               | Wall Mount   |  | Wall Mount   |  |
|             | Dimensions (W x H x D) | 219 x 75.15 x 229.7mm<br>(without of stand holder)                     |  | 300 x 73.6 x 218 mm  | 300 x 75 x 217 mm  |
| Environment | Operating Temp.        | -5°C~55°C  | 0°C~40°C   | 0°C~45°C   |  |

## 3rd/2nd/1st Gen Intel Xeon Scalable Processor Family



| Model Name  |                        | RM645-ICX610   | RM620-PR611   |
|-------------|------------------------|--|---|
| Platform    |                        | Rack Mount IPC   | Rack Mount IPC  |
| System      | Processor              | 3rd Gen Intel® Xeon® Scalable Processor Family                                 | 2nd/1st Gen Intel® Xeon® Scalable Processor Family                                    |
|             | Socket                 | LGA 4189   | LGA 3647  |
|             | Max. Speed             | 3.1~3.6GHz   | 3.0~3.9GHz  |
|             | CPU TDP                | up to 185W   | up to 150W  |
|             | Cache                  | 12~48M   | 11~35.75M   |
|             | Chipset                | Intel® C621A   | Intel® C621   |
|             | BIOS                   | Insyde SPI 128Mbit   | Insyde SPI 128Mbit  |
| Memory      | Technology             | Single Channel DDR4 up to 3200MHz  | Single Channel DDR4 up to 2933MHz   |
|             | Max. Capacity          | 512GB  | 192GB   |
|             | Socket                 | 8 x 288-pin ECC-RDIMM up to 512GB  | 6 x 288-pin RDIMM up to 192GB   |
| Storage     |                        | 1 M.2 2280 M key,<br>6 SATA 3.0(RAID 0/1/5/10)                                 | 1 M.2 2280 M key,<br>1 M.2 2230 E key,<br>6 SATA 3.0(RAID 0/1/5/10)                   |
| Expansion   |                        | 3 PCIe x16 Gen4,<br>3 PCIe x8 Gen4   | 3 PCIe x16 (Gen 3),<br>3 PCIe x8 (Gen 3)(share w/ PCIe x16)                           |
| Audio       | Audio Codec            | ALC888S  | ALC887  |
| Ethernet    | Controller             | 2 Intel® I210, 2 Intel® X550-AT2,<br>1 IPMI: RTL8211F                          | 2 Intel® I210,<br>IPMI: RTL8211F (Opt.)   |
| LED         | Indicators             | Power, HDD LED   | Power, HDD LED  |
| I/O         | Ethernet (GbE)         | 2x GbE, 2x 10GbE,<br>1 Dedicated IPMI LAN(opt.)                                | 2 GbE,<br>1 dedicated IPMI LAN (Opt.)   |
|             | Serial                 | 1 RS-232 (DB-9)  | 1 RS-232 (DB-9)   |
|             | USB                    | 4 USB 3.2 Gen1,<br>2 USB 2.0   | 4 USB 3.2 Gen1,<br>2 USB 2.0  |
|             | Display                | 1 VGA  | 1 VGA (Opt.)  |
|             | DIO                    | 16-bit DIO(opt.)   | -   |
|             | Buttons                | Power  | Power   |
|             | Wi-Fi Antenna          | -  | -   |
| Audio       | 1 Front Audio Header   | 1 Front Audio Header   |   |
| Power       |                        | ATX PS2/ Mini Redundant (Opt.)   | ATX PS2/ Mini Redundant (Opt.)  |
| Cooling     |                        | 2x 12CM system Fan   | 3x 8CM system Fan   |
| OS Support  |                        | Win10 IoT Enterprise LTSB RS5(64-bit),<br>Windows Server 2019,<br>Ubuntu 20.04 | Win10 IoT Enterprise LTSB RS5(64-bit),<br>Windows Server 2019,<br>Windows Server 2016 |
| Mechanism   | Construction           | Chassis Sheet Metal  | Chassis Sheet Metal   |
|             | Mounting               | Rack Mount   | Rack Mount  |
|             | Dimensions (W x H x D) | 481.6 x 175.6 x 470.8 mm   | 482.6 x 88 x 495.8 mm   |
| Environment | Operating Temp.        | 0°C~40°C   | 0°C~40°C  |

# Application-Specific System

Application-Oriented Solutions



10 TRAINS PLATFORM

## In-Vehicle

In-vehicle system delivers efficient computing power, rich I/O, and sufficient expansion interfaces, allowing accessible data collection from numbers of vehicle sensors via wired or wireless connectivity and analyzing the data for real-time feedback to drivers and the control center. With rugged designs, the system can operate effectively and stably under critical conditions, including rugged terrains or other outdoor environments. It suits IoT devices controller of bus, truck, or taxi.

### CAN-Bus Interface Support

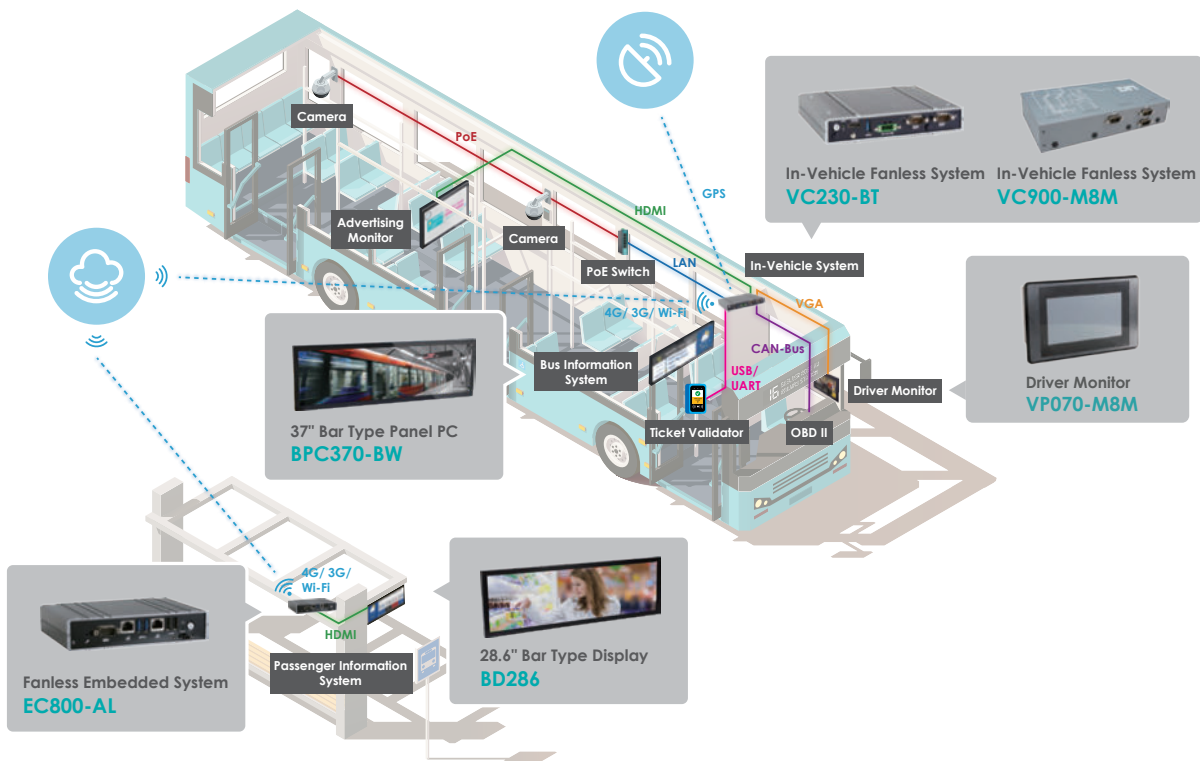


CAN-Bus (Optional)

### In-Vehicle Power Protector



In-Vehicle Power Protector



## Gaming

We provide complete gaming demo program, API library, sample code, and detailed user guides to help quickly integrate various functions. Based on our service and expertise, game developers are able to focus on their core value to develop the games.

With hardware functions of exclusive smart meter and gaming I/O, it's easy to upgrade the security control of the system to the highest level to match the policy of operators. Based on the complete eco-system, DFI offers one-stop solution to fully customize every part in the machine, and is able to reduce the cost to a reasonable level.

### Gaming I/O and Intrusion Detection



Intrusion Detection



### 4 Display Ports Support 4K @ 60Hz



4 Displays

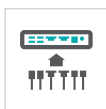
## Medical Computing

Medical equipment needs to output accurate results and keeps in stable operation, with peripheral equipment connected in various interfaces through clean signals not interfering with each other. Therefore, strict certification standards are necessary for the selection of machines.

DFI's MD711-SU is a high-performance fanless embedded Box IPC designed to work with medical equipment. This medical PC is equipped with 4kV isolated I/O ports and specialized heat dissipation technology with easy-to-clean design and silent operation. The ideal medical applications for this system covers nursing carts, operating rooms, healthcare information systems, and medical OEM equipment integration to ensure the best patient care.

Certifications: CE, FCC, RoHS, IEC 60601-1-2:2014, EN 60601-1-2:2015, ISO 14971:2007

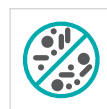
### 4KV Isolated I/O Ports



Isolated I/O



### Medical-Grade Antibacterial Finish



Antibacterial finish



# 13th/10th Gen Intel Core Railway Systems



| Model Name                        |                        | MPC544-RPS   | VC500-CMS  | VC500-CMS-MXM  |
|-----------------------------------|------------------------|--|--|--|
| Platform                          |                        | Desktop  | Desktop  |  |
| System                            | Processor              | 13th Gen Intel® Core™ Processor  | 10th Gen Intel® Core™ Processor  |  |
|                                   | Socket                 | LGA1700  | LGA 1200   |  |
|                                   | Max. Speed             | 4.6 ~ 5.2GHz   | 3.0~4.5GHz   |  |
|                                   | CPU TDP                | 65W  | 35W  |  |
|                                   | Cache                  | 24/30/36M  | 2/4/6/12/16/20M  |  |
|                                   | Chipset                | Intel® R680E/Q670E   | Intel® Q470E/W480E/H420E   |  |
|                                   | BIOS                   | AMI SPI 256Mbit  | AMI SPI 256Mbit  |  |
| GPU / AI Accelerator Card Support |                        | RTX 6000 Ada, RTX 5000 Ada, RTX 4500 Ada, RTX 4000 Ada, RTX A6000, RTX A5000, RTX 4070 | N/A  | up to 150W MXM GPU module<br>Compatible MXM Type A/B: RTX A2000, A500, A4500 |
| Memory                            | Technology             | Dual Channel DDR5 up to 4400 MHz (ECC/Non-ECC)   | Dual Channel DDR4 2933/2666/2400/2133 SDRAM (ECC support for Xeon-1270TE)      |  |
|                                   | Max. Capacity          | 128GB  | 64GB   |  |
|                                   | Socket                 | 4 UDIMM  | 2 SODIMM   |  |
| Storage                           |                        | 2 swappable 2.5" SATA drive bays, 1 M.2 2242/2260/2280, 1 M.2 2242/2260/2280           | 2 swappable 2.5" SATA drive bays, 1 M.2 2242/2260/2280                         |  |
| Expansion                         |                        | 2 PCIe x16 (Gen 4) (1 x16 or 2 x8), 2 PCIe x4 (Gen 4), 1 M.2 E key 2230(Opt.)          | 1 mPCIe, 1 M.2 2230 E key, 1 M.2 3042/3052 B key, 1 M.2 2242/2280 M Key, 2 SIM |  |
| Audio                             | Audio Codec            | Realtek ALC888   | Realtek ALC888   |  |
| Ethernet                          | Controller             | 1 Intel® I226, 1 Intel® I226   | 1 Intel® i219, 1 Intel® i210   |  |
| LED                               | Indicators             | 1 Power Status   | 1 Storage Activity, 1 Power Status, 2 Programmable general purpose             |  |
| I/O                               | PoE/10G                | N/A  | 4x 802.11af PoE (RJ45/M12) or 2x 10GbE (SFP+ cage)                             |  |
|                                   | Ethernet (GbE)         | 2x 2.5GbE, 2x GbE (supports 2kV isolation) (Opt.)                                      | 2  |  |
|                                   | Serial                 | 2 RS-232, 2 RS-232 (supports 4kV isolation) (Opt.)                                     | 4 RS-232/422/485, 1 RS-232   |  |
|                                   | USB                    | 10 USB 3.2 Gen1  | 8 USB 3.2  |  |
|                                   | Display                | 1 HDMI, 2 DP++, 1 VGA  | 2 DP++, 1 HDMI   |  |
|                                   | DIO                    | 4-IN / 8-OUT DIO (internal)  | 8-bit DI + 8-bit DO  |  |
|                                   | Buttons                | Power  | Power, Reset   |  |
|                                   | Antenna                | 2 holes  | 8 holes  |  |
|                                   | Audio                  | Line-in, Line-out, Mic-in  | Mic-in, Line-in, Line-out  | Mic-in, Line-in  |
| Power                             |                        | PSU 700W   | 3pin 3W3 connector or 3 pin terminal block, 9~50V DC-in                        |  |
| Cooling                           |                        | Active Fan   | Passive  | Passive or active fan  |
| OS Support                        |                        | Win10 IoT Enterprise, Ubuntu Linux   | Win10 IoT Enterprise, Ubuntu Linux   |  |
| Mechanism                         | Construction           | Metal  | Aluminum + Metal   |  |
|                                   | Mounting               | Wall Mount   | Wall Mount   |  |
|                                   | Dimensions (W x H x D) | 380 x 180 x 400 mm   | 235 x 87.5 x 221mm (mounting bracket excluded )                                | 383 x 87.5 x 221mm (mounting bracket excluded )                              |
| Environment                       | Operating Temp.        | 0°C~40°C   | -20°C~70°C   | -20°C~60°C   |

## 9th/8th Gen Intel Core In-vehicle System



| Model Name                        |                           | RC300-CS   | VC300-CS   |
|-----------------------------------|---------------------------|--|--|
| Platform                          |                           | Desktop  |  |
| System                            | Processor                 | 9th/8th Gen Intel® Core™ Processor                                     |  |
|                                   | Socket                    | LGA 1151   |  |
|                                   | Max. Speed                | 1.8~2.4GHz   | 1.8~2.6GHz   |
|                                   | CPU TDP                   | 35W  |  |
|                                   | Cache                     | 9/12M  |  |
|                                   | Chipset                   | Intel® Q370  |  |
|                                   | BIOS                      | AMI SPI 128Mbit  |  |
| GPU / AI Accelerator Card Support |                           | up to 115W GPU MXM module without active fan<br>MXM Type A/B/C         | up to 150W MXM GPU module<br>MXM Type A/B/C                |
| Memory                            | Technology                | Dual Channel DDR4 2666/2400MHz   |  |
|                                   | Max. Capacity             | 64GB   |  |
|                                   | Socket                    | 2 SODIMM   |  |
| Storage                           |                           | 4 Swappable 2.5" 7mm SSD Storage Bays,<br>1 M.2 2280                   | 2 Swappable 2.5" 7mm SSD Storage Bays,<br>1 M.2 2280       |
| Expansion                         | PCIe, PCI                 | -  |  |
|                                   | Mini PCIe, M.2            | 1 Half mPCIe, 2 Full mPCIe,<br>1 M.2 3042/3052 B Key, 1 M.2 2280 M Key |  |
|                                   | SIM                       | 2  |  |
| Ethernet                          | Controller                | 5 Intel® I210, 1 Intel® I219   |  |
| LED                               | Indicators                | Power, Storage, PoE  |  |
| I/O                               | GbE, PoE                  | 2 RJ45 GbE, 4 M12 X-coded PoE  | 2 RJ45 GbE, 4 RJ45/M12 X-coded PoE                         |
|                                   | Serial                    | 2 RS-232/422/485 (DB-9)  | 2 RS-232/422/485 (DB-9),<br>2 RS-232/422/485 (pin headers) |
|                                   | USB                       | 4 USB 3.2, 2 USB 2.0   |  |
|                                   | Display                   | 1 VGA, 1 HDMI, 1 DP++  |  |
|                                   | Audio                     | Mic-in, Line-out   |  |
|                                   | DIO                       | 2 x 8-bits DIO (Isolated) (DB-15)                                      |  |
|                                   | Buttons                   | Power, Reset   |  |
|                                   | Antenna                   | 7 SMA Holes  |  |
| Power                             |                           | 77~137.5VDC or 9~36VDC   | 9~36VDC  |
| Cooling                           |                           | Fanless  | Fan or Fanless   |
| OS Support                        |                           | Win10 IoT Enterprise, Linux Ubuntu                                     |  |
| Mechanism                         | Construction              | Metal + Aluminum   |  |
|                                   | Mounting                  | Wall Mount   |  |
|                                   | Dimensions<br>(W x H x D) | 340.5 x 132 x 223mm  | 340.5 x 132 x 223mm  |
| Environment                       | Operating Temp.           | -25°C~55°C or -25°C~70°C   | -25°C~60°C or -25°C~70°C                                   |

## 7th/6th Gen Intel Core & Atom Processor



| Model Name  |                        | VC70B-KU                           | MD711-SU   | VC230-AL  | VC230-BT                                       |
|-------------|------------------------|------------------------------------|--|---|--|
| Platform    |                        | ULT                                | ULT  | Atom  | Atom   |
| System      | Processor              | 7th Gen Intel® Core™ Processor     | 6th Gen Intel® Core™ Processor                     | Intel Atom® Processor E3900                         | Intel Atom® Processor E3800                    |
|             | Socket                 | FCBGA 1356                         | BGA 1356   | BGA 1296  | BGA 1170                                       |
|             | Max. Speed             | 2.4~2.8GHz                         | 2.4~2.6GHz   | 1.6~2.0GHz  | 1.33~1.91GHz                                   |
|             | CPU TDP                | 15W                                | 15W  | 6.5/9/12W   | 6/10W  |
|             | Cache                  | 3/4M                               | 3/4M   | 2M  | 1/2M   |
|             | BIOS                   | Insyde SPI 128Mbit                 | Insyde SPI 128Mbit                                 | AMI SPI 64Mbit                                      |  |
| Memory      | Technology             | Dual Channel DDR4 2133MHz          | Dual Channel DDR4 2133MHz                          | Single Channel DDR3L 1600/1866MHz                   | Single Channel DDR3L 1066/1333MHz              |
|             | Max. Capacity          | 4/8GB                              | 32GB   | 8GB   | 2/4GB  |
|             | Socket                 | Memory Onboard                     | 2 SODIMM   | 1 SODIMM  | ECC Memory Onboard                             |
| Storage     |                        | 1x 2.5" SATA 3.0 Drive Bay         | 2x 2.5" SATA 3.0 Drive Bay, 1 M.2 2242             | eMMC up to 64GB, 1 mSATA-mini                       | eMMC up to 32GB (Opt.), 1 mSATA                |
| Expansion   | PCIe, PCI              | -                                  | 1 PCIe x16   | -   |  |
|             | Mini PCIe, M.2         | 1 Full mPCIe, 1 Half mPCIe         | 1 Full mPCIe, 1 M.2 2242                           | 2 Full mPCIe, 1 Half mPCIe                          |  |
|             | microSD, SIM           | -                                  | -  | 3 SIM   | 1 SIM, 1 micro SD Card Slot (Opt.)             |
| Audio       | Audio Codec            | Realtek ALC888                     | Realtek ALC888                                     | -   |  |
| Ethernet    | Controller             | 1 Intel® I210, 1 Intel® I219       | 1 Intel® I210, 1 Intel® I219                       | 2 Intel® I210                                       |  |
| LED         | Indicators             | Status, HDD LED                    | Power, HDD LED                                     | Power, Storage LED                                  | Status, HDD LED                                |
| I/O         | Ethernet (GbE)         | 2                                  | 2  | 2   |  |
|             | Serial                 | 2 RS-232/422/485, 4 RS-232         | 2 RS-232   | 1 RS-232/422/485                                    | 3 RS-232/422/485                               |
|             | USB                    | 4 USB 3.2, 2 USB 2.0               | 4 USB 3.2, 2 USB 2.0                               | 2 USB 3.2, 2 USB 2.0                                | 1 USB 3.2, 4 USB 2.0                           |
|             | Display                | 1 HDMI, 1 VGA                      | 1 DP/HDMI(Opt.), 1 DVI-D                           | 1 HDMI, 1 DVI                                       | 1 HDMI, 1 VGA                                  |
|             | DIO                    | 8-bit DIO (Opt.)                   | -  | 8-bit Isolated DIO up to 30V Input                  | 8-bit DIO via DB-9 port (Opt.)                 |
|             | Buttons                | Power, Reset Button                | Power Button                                       | Reset Button  | Power, Reset Button                            |
|             | Antenna                | 5 Holes                            | 1 Holes  | 4 SMA Holes, 1 FME Hole                             | 3 Holes  |
|             | Audio                  | Line-out, Mic-in                   | Line-out, Mic-in                                   | Audio Out 1 x 4pins 5.00mm terminal block connector | Line-out (Opt.)                                |
| Interfaces  |                        | CAN-Bus via DB-9 port (Opt.)       | 4kV isolated I/O ports: 2 GbE, 2 RS-232, 2 USB 2.0 | CAN-Bus via DB-9 (Opt.)                             |  |
| Power       |                        | 9~36V DC-in with Ignition control  | 9~36V DC-in  | 9~36V DC-in with Ignition control                   |  |
| Cooling     |                        | Fanless                            | Fanless  | Fanless   |  |
| OS Support  |                        | Win10 IoT Enterprise, Win10, Linux | Win7, Win8.1, Win10, WES 7, WE8S, Linux            | Win10, Linux, CentOS 7                              | Win7, Win8, Win8.1, Win10 (Opt.), WES 7, WES 8 |
| Mechanism   | Construction           | Aluminum + Sheet Metal             | Aluminum + Metal Aluminum                          | Aluminum + SPGC Metal                               | Aluminum + Metal Aluminum                      |
|             | Dimensions (W x H x D) | 184 x 82 x 118.4 mm                | 182 x 97.6 x 200mm                                 | 180 x 50 x 121.2 mm                                 | 180 x 33 x 121.2 mm                            |
| Environment | Operating Temp.        | -20°C~60°C                         | 0°C~40°C (w/0.7m air flow)                         | -40°C~70°C  | -20°C~60°C                                     |





| Model Name  |                        | VC900-M8M  |
|-------------|------------------------|--|
| Platform    |                        | ARM  |
| System      | Processor              | NXP i.MX8M Quad, Cortex-A53 1.3GHz (by model)<br>NXP i.MX8M Dual, Cortex-A53 1.3GHz (by model) |
| Memory      | Technology             | Single channel LPDDR4 up to 3200 MHz   |
|             | Max. Capacity          | 2/4GB  |
|             | Socket                 | Memory Onboard   |
| Storage     |                        | eMMC 5.1 up to 64GB,<br>Micro SD card slot   |
| Sensor      |                        | 6 axis IMU (3 Accelerometer + 3 Gyroscope)   |
| Expansion   |                        | 1 M.2 2242/3042 B Key, 1 M.2 2230 E Key,<br>1 Nano SIM   |
| LED         | Indicators             | Status LED   |
| I/O         | Ethernet (GbE)         | 1  |
|             | Serial                 | 1 RS-232/422/485, 3 RS-232   |
|             | USB                    | 2 USB 3.2, type A,<br>1 OTG, micro USB   |
|             | Display                | 1 HDMI   |
|             | Buttons                | Power reset button   |
|             | Antenna                | 4 Holes  |
|             | Audio                  | with Amplifier to support 2W speaker (Opt.)<br>Line-out, MIC-in (internal header)              |
| Power       |                        | 9~36V with ACC/IGN function (3-pole terminal block)  |
| Cooling     |                        | Fanless  |
| OS Support  |                        | Yocto Linux 2.5, Android 9.0 (Opt.)  |
| Mechanism   | Construction           | Sheet Metal  |
|             | Mounting               | Wall/DIN-Rail mount  |
|             | Dimensions (W x H x D) | 220 x 122 x 43 mm  |
| Environment | Operating Temp.        | -20°C~70°C   |

# Ruggedized Embedded System

Application-Oriented Solutions



## Ultra Ruggedized

Featuring the IP66 white enclosure and wide-temperature from -40 to 70°C, our ultra-ruggedized system can operate as the edge computer outdoor 24/7 without any shelter. The smart vent design can easily drain off water automatically to remain dry inside the system.

Our system also delivers versatile water-proof I/O including external SIM slot, high-gain antenna, combo port, and selective display ports (HDMI/VGA) were also delivered to help integrator meet the demand for various applications. It's an ideal candidate as outdoor IoT edge computing in the critical environment.

### IP66 Enclosure Withstand Water and Dust



IP66 Grade



### Outdoor IoT Edge Computing



Outdoor Application



## 12th Gen Intel Core & Atom Processor



| Model Name  |                        | ECX700-ADP  | ECX700-AL   |
|-------------|------------------------|---|---|
| Platform    |                        | ULT   | Atom  |
| System      | Processor              | 12th Gen Intel® Core™ Processor   | Intel Atom® Processor E3900   |
|             | Socket                 | BGA 1744  | BGA 1296  |
|             | Max. Speed             | 4.7GHz  | 1.8~2.0GHz  |
|             | CPU TDP                | 15W   | 6/9.5/12W   |
|             | Cache                  | 10/12M  | 2M  |
|             | BIOS                   | AMI SPI 256Mbit   | AMI SPI 128Mbit<br>(supports UEFI/Legacy mode and Security Boot (Opt.)) |
| Memory      | Technology             | Dual Channel DDR4 3200MHz   | Dual Channel DDR3L 1866MHz  |
|             | Max. Capacity          | 40GB(8GB memory onboard + 32GB memory DIMM)                                   | 2/4/8GB, 8GB total max  |
|             | Socket                 | Memory Onboard, 1 SODIMM  | Memory Onboard, 1 SODIMM  |
| Storage     |                        | 1 M.2 2280 M Key, 1 M.2 3042/3052 B Key,<br>1 M.2 2230 E Key, 1 SIM for 4G/5G | eMMC 8G/16GB/32GB/64GB (Opt.)   |
| Expansion   | Mini PCIe, M.2         | -   | 2 Full mPCIe, 1 M.2 2230 E Key  |
|             | SIM, microSD           | 1 SIM   | 1 SIM   |
| Audio       | Audio Codec            | Realtek ALC888  | -   |
| Ethernet    | Controller             | 2 Intel® I225   | 2 Intel® I210   |
| LED         | Indicators             | Power   | Power Status  |
| I/O         | Ethernet (GbE)         | 2   | 2 (M12 type)  |
|             | Serial                 | 2 RS-232/422/485 or<br>2 RS-232/422/485 + 2 CANBUS (for optional)             | 1 combo waterproof connector<br>(2 RS-232, 2 CANbus protocol)           |
|             | USB                    | 4 USB 3.2 (4 Type A)  | 2 Waterproof USB Type-A Connector with cover                            |
|             | Display                | 1 HDMI  | 1 Waterproof HDMI Connector with cover                                  |
|             | DIO                    | N/A   | -   |
|             | Buttons                | N/A   | -   |
|             | Antenna                | 4 (LTE), 2 (WiFi)   | 2 (LTE), 2 (WiFi)   |
|             | Audio                  | N/A   | -   |
| Interfaces  | -                      | -   |   |
| Power       |                        | 9~36V DC-in   | 9~36V DC-in   |
| Cooling     |                        | Fanless   | Fanless   |
| OS Support  |                        | Win10 IoT Enterprise 64-bit, Linux  | Win10 IoT Enterprise 64-bit, Linux                                      |
| Mechanism   | Construction           | Metal + Aluminum  | Aluminum, IP66 waterproof   |
|             | Dimensions (W x H x D) | 181.6 x 57 x 118.4mm  | 217 x 188 x 87 mm<br>(with wall-mount bracket)                          |
| Environment | Operating Temp.        | Fanless: -20°C~60°C   | -40°C~70° C   |