

# Vecow Sales Kit

## 2018 Q4



# ToC

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- **Gen8 CFL-S**

- ECX-1000
- ECX-1400
- ECX-1200
- RCX-1000
- UMBC-1000

- **Atom APL-I**

- EMBC-2000
- SPC-4000
- SPC-4500
- SEC-2000

- **New Product Lines**

- EVS-1000 (MXM)
- RES-1000 (IP67)
- VIG-100 (ARM)
- UPM-100 (Power Backup)

# ECX-1000 (Gen8 CFL-S)

↳ **Extreme** High Performance Computing System

# Intel Gen8 CFL-S CPU Selection

Series	CPU	#Core	Cache (MB)	Turbo Freq. (GHz)	TDP (W)	ECC Memory
Intel® Xeon®	E-2176G	6	12	4.6	80	Yes
	E-2124G	4	8	4.5	71	
Intel® Core™	i7-8700	6	12	4.6	65	NA
	i7-8700T		12	4.0	35	
	i5-8500	9	9	4.1	65	NA
	i5-8500T		9	3.5	35	
	i3-8100	4	6	3.6	65	Yes
	i3-8100T		6	3.1	35	

## Compared with SKL-S

- **CPU** : 6-Core
- **Memory** : DDR4 2666MHz (6-core only)
- **I/O** : Support USB 3.1 & 4 additional PCIe lanes

# ECX-1000 series

## Features

- **CPU** : 6-Core Gen8 Intel® Xeon/Core (Coffee Lake-S) with Workstation-grade Intel® C246 Chipset
- **Memory** : 2 DDR4 **2666MHz** (up to **64GB**)
- **I/O & Expansion** :
  - Up to 9 GigE LAN w/ 4 PoE+
  - 6 **USB 3.1**, 4 COM, 16 Isolated DIO, 3 Displays
  - 2 Mini PCIe, 2 SIM, 1 CFast, 2 2.5" SSD,
  - **2 M.2 (Key E&M)**, SUMIT A/B
- **Others** :
  - 6V to 36V DC-in w/ 80V Surge Protection
  - Configurable Ignition Power Control
  - Fanless, -40°C to 75°C Operating Temperature



# ECX-1000 series Offering

**SUMIT implemented**

LSM-100

FSM-200

LSM-550-AT2

FSM-710-BM2

Model Name	GigE LAN	PoE <sup>+</sup>	SFP	10G RJ45	10G SFP+	SSD Tray	USB 3.1	Isolated DIO	GPIO	Fanless
ECX-1000-9R	9	4	-	-	-	2	6	16	-	Yes
ECX-1000-9GD	9	4	-	-	-	-				
ECX-1000-PoER	6	4	-	-	-	2				
ECX-1000-PoE	6	4	-	-	-	-				
ECX-1000-6FR	6	-	2	-	-	2				
ECX-1000-6F	6	-	2	-	-	-				
ECX-1000-4R	4	-	-	-	-	2				
ECX-1000-4G	4	-	-	-	-	-				
ECX-1000-2R	2	-	-	-	-	2				
ECX-1000-2G	2	-	-	-	-	-				
ECX-1055R	6	4	-	2	-	2		16	-	
ECX-1055	6	4	-	2	-	-				
ECX-1071R	6	4	-	-	2	2				
ECX-1071	6	4	-	-	2	-				

# ECX-1400/1200



**Extreme** High Performance Computing System



# ECX-1200 series

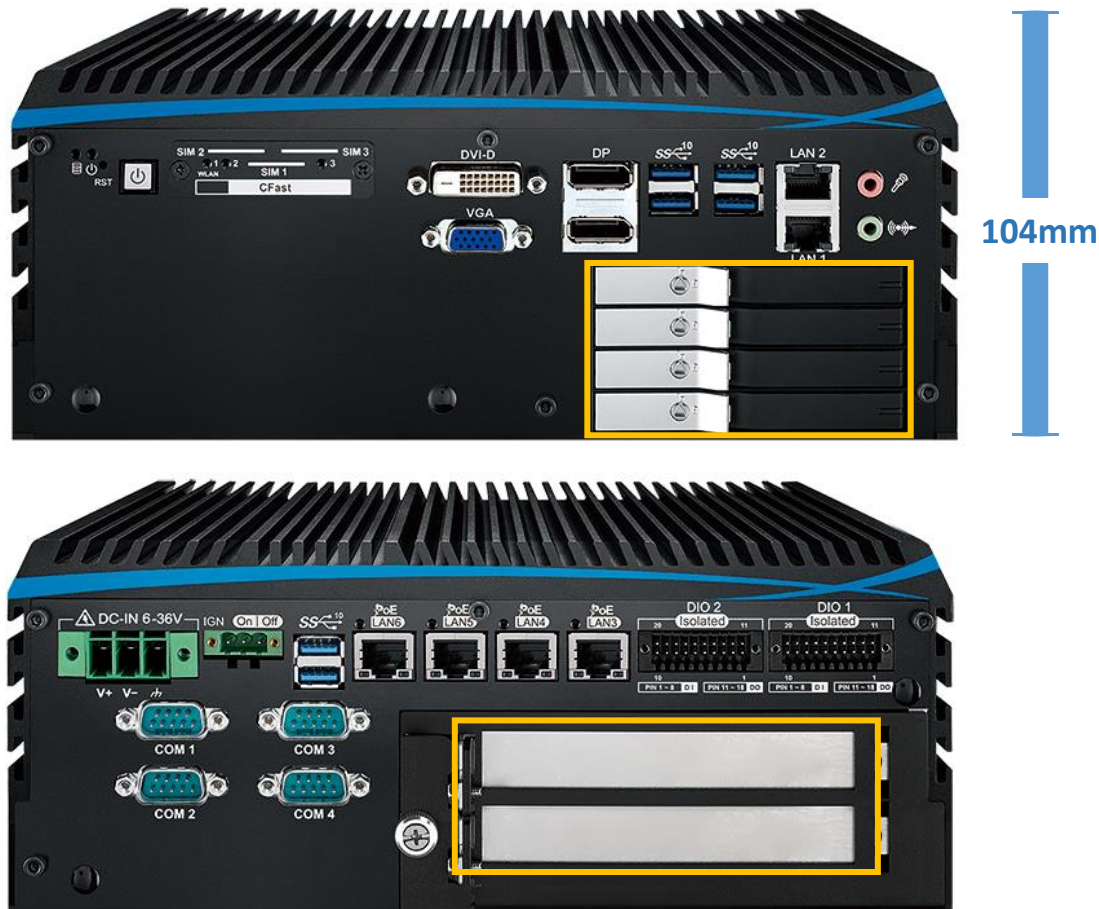
## Features

- **CPU** : 6-Core Gen8 Intel® Xeon/Core (Coffee Lake-S) with Workstation-grade Intel® C246 Chipset
- **Memory** : 2 DDR4 2666MHz (up to **64GB**)
- **I/O & Expansion** :
  - 6 GigE LAN w/ 4 **M12** PoE+
  - 6 USB 3.1, 4 COM, 32 Isolated DIO, 4 Displays
  - 2 Mini PCIe, 3 SIM, 1 CFast, 2 2.5" SSD,
  - **M.2 (Key B, M, E), 1 PCIe/PCI slot, SUMIT A/B**
- **Others** :
  - **200W Power Budget**
  - 6V to 36V DC-in w/ 80V Surge Protection
  - Configurable Ignition Power Control
  - Fanless, -40°C to 75°C Operating Temperature





# ECX-1400 series



## Features

- **CPU** : 6-Core Gen8 Intel® Xeon/Core (Coffee Lake-S) with Workstation-grade Intel® C246 Chipset
- **Memory** : 2 DDR4 2666MHz (up to **64GB**)
- **I/O & Expansion** :
  - 6 GigE LAN w/ 4 PoE+
  - 6 USB 3.1, 4 COM, 32 Isolated DIO, 4 Displays
  - 2 Mini PCIe, 3 SIM, 1 CFast, **4 2.5" SSD**,
  - **M.2 (Key B&E), 2 PCIe/PCI slots, SUMIT A/B**
- **Others** :
  - **200W Power Budget**
  - 6V to 36V DC-in w/ 80V Surge Protection
  - Configurable Ignition Power Control
  - Fanless, -40°C to 75°C Operating Temperature

Coming Soon!

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# RCX-1000



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# RCX-1000 series



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## Features

- **CPU :** 6-Core Gen8 Intel® Xeon/Core (Coffee Lake-S) with Workstation-grade Intel® C246 Chipset
- **Memory :** 4 DDR4 2666MHz (up to **64GB**)
- **I/O & Expansion :**
  - 2 GigE LAN, 6 USB 3.1, 4 COM, 32 Isolated DIO
  - 2 Mini PCIe, 2 SIM, **4 2.5" SSD**,
  - **M.2 (Key M, E)**, 4 PCIe/PCI slot
- **Others :**
  - **300W Power Budget**
  - **FAN cover / FAN module optional**
  - 6V to 36V DC-in w/ 80V Surge Protection
  - Configurable Ignition Power Control
  - Fanless, -40°C to 75°C Operating Temperature

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# UMBC-1000

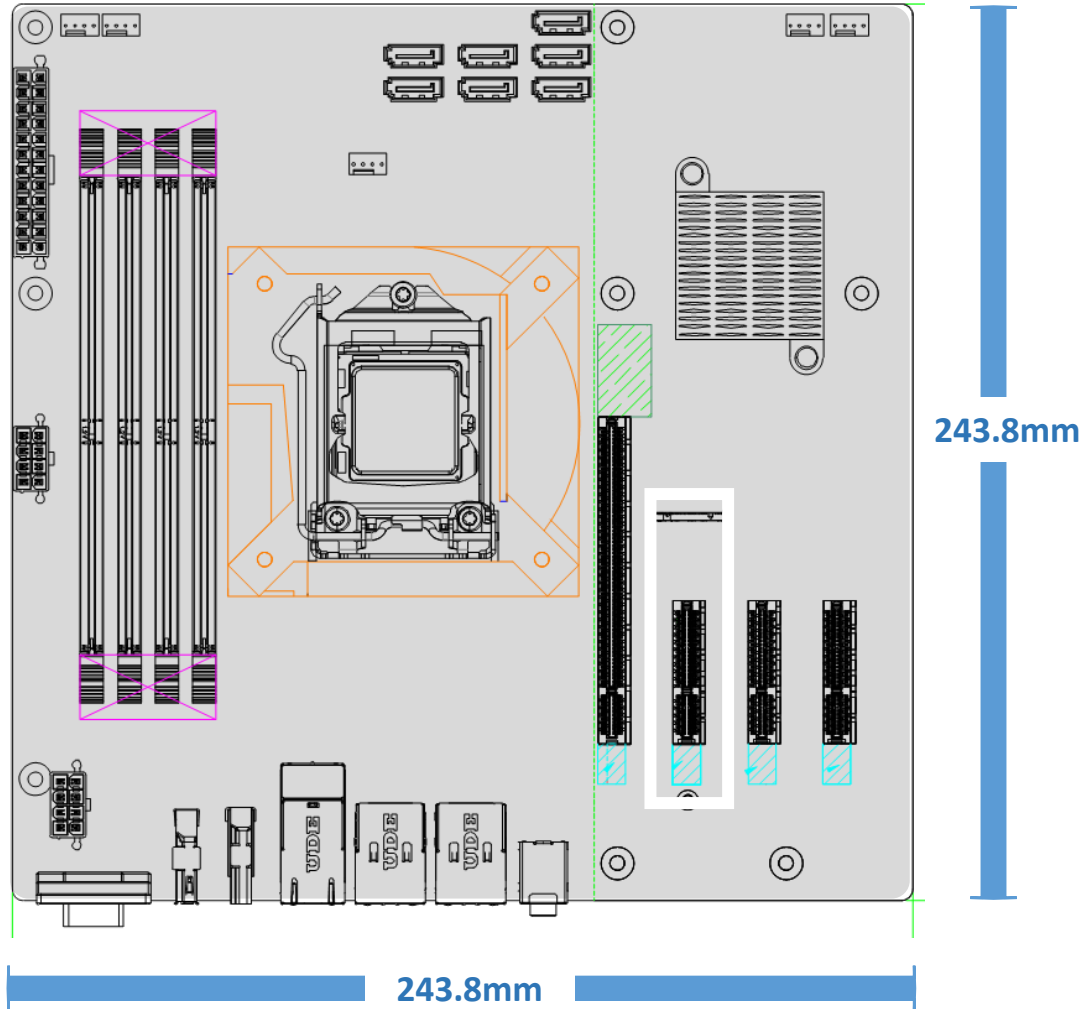


**MicroATX** Industrial Motherboard

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# UMBC-1000



## Features

- **CPU :** 6-Core Gen8 Intel® Xeon/Core (Coffee Lake-S) with Workstation-grade Intel® C246 Chipset
- **Memory :** 4 DDR4 2666MHz (up to **64GB**)
- **I/O & Expansion :**
  - Triple Displays : VGA, DP & HDMI
  - 4 GigE LAN (optional 4 PoE+), 6 USB3, 4 USB2, 5 COM, 7 SATA, **1 PCIe x16, 3 PCIe x4** (1 PCIe x4 co-lay **M.2 (Key M, 2280)**)
- **Others :**
  - TPM 2.0 supported
  - ATX Power Input : 12V / 5V / 5 VSB / 3.3V
  - 0°C to 60°C Operating Temperature

## **EMBC-2000 (3.5" SBC)**

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- EMBC-2000
- SPC-4000
- SEC-2000 (Small Expandable Computing)

# EMBC-2000

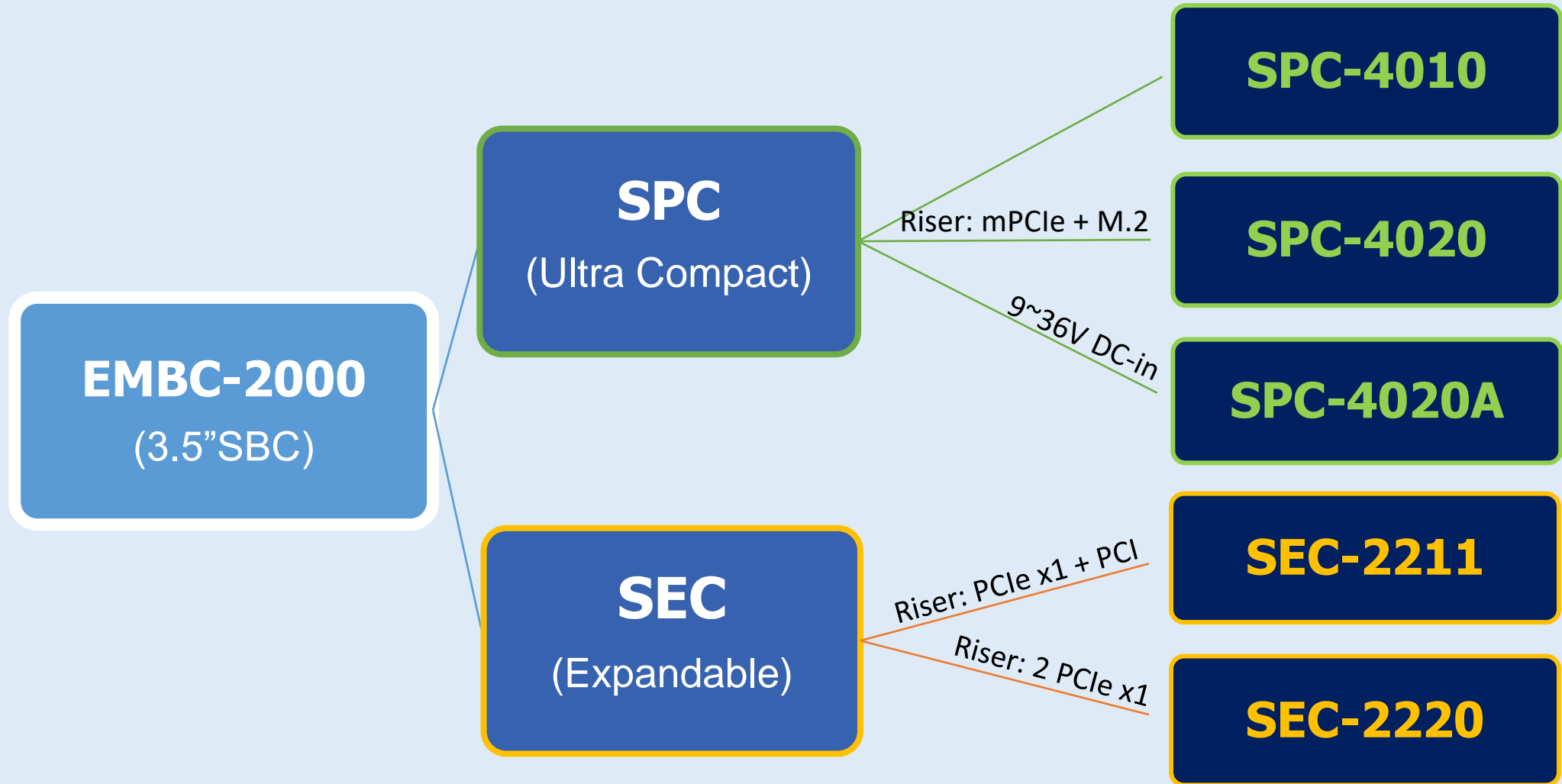


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## Features

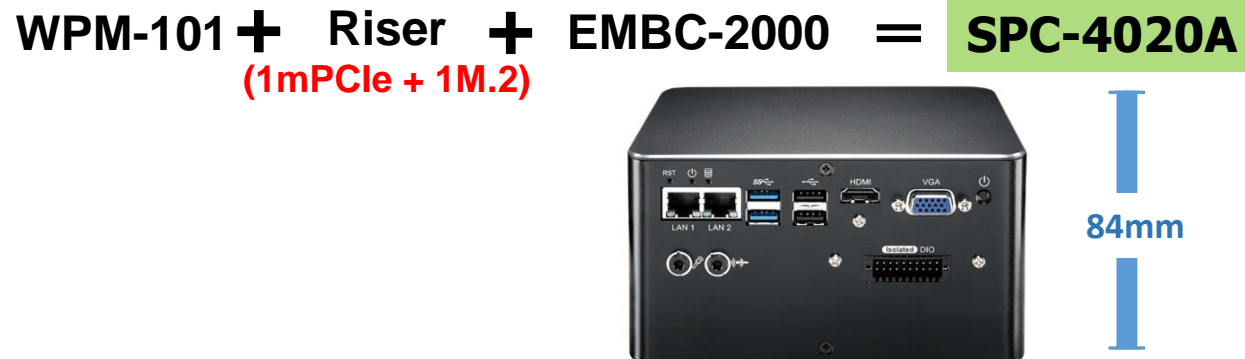
- **CPU :** Quad Core Intel Atom® x7-E3950 SoC (APL-I)
- **Memory :** 1 DDR3L 1866MHz (up to 8GB)
- **Display :** **Lockable HDMI**, VGA, 24-bit LVDS
- **I/O :**
  - 2 GigE LAN support **IEEE 1588 (PTP)**
  - 6 USB, 2 Mini PCIe, 1 SIM, 2 SATA III
  - 16 GPIO, 4 COM w/2 Isolated
- **Others :**
  - **TPM 2.0** supported
  - 12V DC Power Input, optional 9V to 36V
  - Fanless, -40°C to 85°C Operating Temperature
  - Optional M.2, Mini PCIe or PCI/PCIe expansions

# EMBC-2000 Family





# SPC-4000 series



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## Features

- Based on EMBC-2000
- **CPU** : Quad Core Intel Atom® x7-E3950 SoC (APL-I)
- **Memory** : 1 DDR3L 1866MHz (up to 8GB)
- **Display** : Lockable HDMI, VGA
- **I/O & Expansion** :
  - 2 GigE LAN support IEEE 1588 (PTP)
  - 6 USB, **3** Mini PCIe, 1 SIM, 1 2.5" SSD, **1 Key B M.2**
  - 16 Isolated DIO, 4 COM w/2 Isolated
- **Others** :
  - TPM 2.0 supported
  - 12V DC Power Input, optional 9V to 36V
  - Fanless, -40°C to 85°C Operating Temperature

Coming Soon!

# SEC-2000 series

**SEC-2220** : 2 PCIe x1

**SEC-2211** : 1 PCIe x1, 1 PCI



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## Features

- Based on EMBC-2000
- **CPU** : Quad Core Intel Atom® x7-E3950 SoC (APL-I)
- **Memory** : 1 DDR3L 1866MHz (up to 8GB)
- **Display** : Lockable HDMI, VGA
- **I/O & Expansion** :
  - 2 GigE LAN support IEEE 1588 (PTP)
  - 6 USB, 2 Mini PCIe, 1 SIM, 2 SSD, **2 PCIe/PCI slots**
  - 16 GPIO, 4 COM w/2 Isolated
- **Others** :
  - TPM 2.0 supported, 12V DC Power Input
  - Fanless, -40°C to 85°C Operating Temperature
  - **Fan Module reserved**

# SPC-4500 series



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## Features

- **CPU :** Quad Core Intel Atom® x7-E3950 SoC (APL-I)
- **Memory :** 1 DDR3L 1866MHz (up to 8GB)
- **Display :** DVI-I, DP
- **I/O & Expansion :**
  - 2 GigE **PoE+** support IEEE 1588 (PTP)
  - 4 USB3.0, 2 Mini PCIe, 1 External SIM, 1 2.5" SSD,
  - 16 Isolated DIO, 4 COM
- **Others :**
  - TPM 2.0 supported
  - 12V DC Power Input, optional 9V to 36V
  - **Configuration Ignition Power Control**
  - Fanless, -40°C to 85°C Operating Temperature

# SPC-4000 Family

Order code	CPU	LAN	USB 3.0	COM (Isolated)	SIM	M.2	Isolated DIO	DC-in
SPC-4010	Intel Atom® E3950	2	2	2 (2)	1	N/A	N/A	12V
SPC-4020		2	2	4 (2)	1	1	16	12V
SPC-4020A		2	2	4 (2)	1	1	16	9~36V
SPC-4500		2	4	4	1 (External)	N/A	N/A	12V
SPC-4600		2 (PoE <sup>+</sup> )	4	4	1 (External)	N/A	16	9~36V

via WPM-100

w/ Ignition Control

## SPC-4000 series



SPC-4010



SPC-4020



SPC-4020A

Long Edge

## SPC-4500 series



SPC-4500



SPC-4600

Short Edge

# M.2 (NGFF)

→ fool-proofing function

VECOW Systems		Key No.	Empty Pin	Interfaces
		A	8 - 15	PCIe×2、USB 2.0、I <sup>2</sup> C、DP×4
ECX-1200 / ECX-1400 / SPC-4020(A)	Storage / Expansion	B	12 - 19	<b>PCIe×2/SATA、USB 2.0</b> 、USB 3.0、Audio、UIM、HSIC、I <sup>2</sup> C、SMBus <span style="background-color: yellow; padding: 2px;">Only for ECX-1200</span>
		C	16 - 23	Reserved
		D	20 - 27	
ECX-1000 / ECX-1200 / ECX-1400	Expansion	E	24 - 31	<b>2 PCIe x1、USB 2.0、I<sup>2</sup>C</b> 、SDIO、UART
		F	28 - 35	FMI (future memory interface)
		G	39 - 46	Reserved for Self Definition
		H	43 - 50	Reserved
		J	47 - 54	
		K	51 - 58	
		L	55 - 62	
ECX-1000 / ECX-1200 / UMBC-1000	Storage	M	59 - 66	<b>PCIe×4/SATA、SMBus</b>

New Product Line!

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# EVS-1000 (MXM)

Visual (VPU = Visual Processing Unit)

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• **RCS-9000F GTX 1080**  
2560 CUDA, 8K Resolution



• **ECS-92/9700 GTX 1050(T)**  
Up to 8K Resolution,  
6 HD Displays, up to 8 PoE



• **RCS-9000**

Up to 4 PCIe Slots,  
250W PWR Budget,  
4 SSD for RAID,  
Kaby Lake/SLK-S



# Product Offerings in GPU Computing System

• **Industry-First**  
**MXM GPU Sys**

• **EVS-1100**  
**GTX 1050/60/70, MXM**  
Up to 7 HD Displays



• **EVS-1000**  
**GT 1030/50, MXM**  
8K Resolution,  
7 HD Displays,  
Flexible Expansions  
(PCIe & SUMIT)



**Industry-First**  
**Fanless GPU Sys**

# EVS-1000

Industry-First **Fanless** GPU Sys

Industry-First **MXM** GPU Sys



4-port  
8K DP1.4

## Features

- **CPU** : Quad Core Intel Xeon/Core-i Processor (Kaby Lake/Skylake-S) with C236 chipset
- **Memory** : 2 DDR4 2133MHz (up to 32GB)
- **Display** : VGA, DVI, 2 DP1.2, 4 DP1.4 (up to 7 HD display)
- **I/O & Expansion** :
  - 2 GigE LAN, 6 USB 3.0, 4 COM, 32 Isolated DIO,
  - 3 Mini PCIe, 3 SIM, 2 SSD, 1 CFAST
  - 1 PCI/PCIe x4, SUMIT A/B
- **Others** :
  - 10V to 36V DC-in, 80V Surge Protection
  - **Fanless**, -20°C to 60°C Operating Temperature
  - Compact NVIDIA GeForce GT1030/GTX1050 MXM
  - 35W CPU is the only option



# EVS-1100

Industry-First **MXM** GPU Sys



4-port  
8K DP1.4



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## Features

- **CPU** : Quad Core Intel Xeon/Core-i Processor (Kaby Lake/Skylake-S) with C236 chipset
- **Memory** : 2 DDR4 2133MHz (up to 32GB)
- **Display** : VGA, DVI, 2 DP1.2, **4 DP1.4** (up to 7 HD display)
- **I/O & Expansion** :
  - 2 GigE LAN, 6 USB 3.0, 3 COM, 32 Isolated DIO,
  - 3 Mini PCIe, 3 SIM, 2 SSD, 1 CFAST
  - 1 PCI/PCIe x4, SUMIT A/B
- **Others** :
  - 10V to 36V DC-in, 80V Surge Protection
  - -20°C to 60°C Operating Temperature
  - Compact NVIDIA GeForce **GTX1050/1060/1070 MXM**
  - 35W CPU is the only option

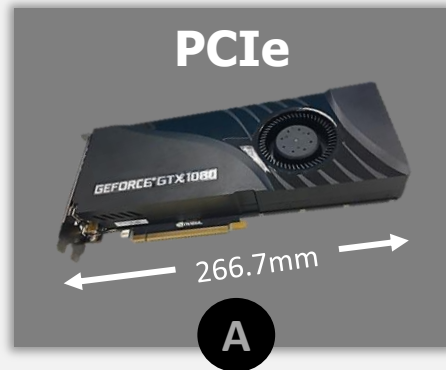
# MXM

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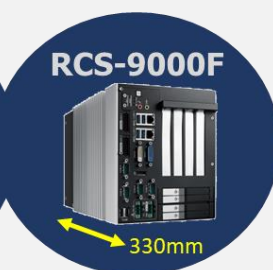
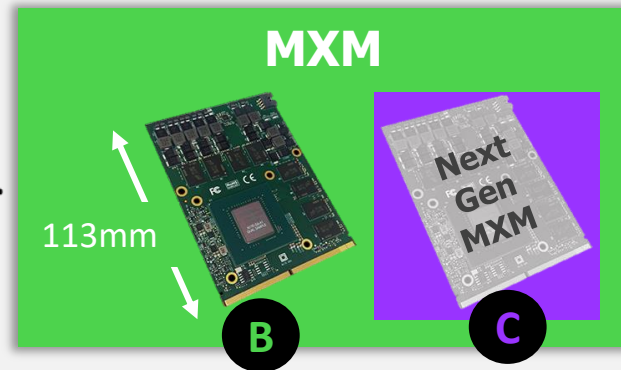
## Mobile PCI Express Module

### Features

- non-proprietary
- industry standard socket
- easily upgrade



V.S.



	Laptop		Embedded System		
Size	B	C	A	B	C
Easily Upgraded	B	C	B	C	

Series	CPU	NVIDIA GeForce
EVS-1000	Intel KBL-S /SKL-S	GT 1030 (30W) GTX 1050 (50W)
EVS-1100		GTX 1050 (50W) GTX 1060 (78W) GTX 1070 (115W)

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# RES-1000 (IP67)

↳ Rugged Embedded System


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# IP67 Definition

## Ingress Protection (IP) Ratings

Connectors may be susceptible to ingress of foreign materials such as moisture or dust, particularly in the unmated condition. Protection from this ingress is provided for connectors by their housing and the seal between the plug, jack, and cable or between a jack and a panel. The IP standard rating system defines the degree of protection provided. The standard IEC 60529 has specified the degree of protection and divided it into several levels, defined by the IP number, which has the letters IP followed by two digits. The first digit defines the protection against the ingress of dust particles, the second digit defines the protection against the ingress of water. The tables below show IP ratings for electrical connectors:

I P 6 7



1 <sup>st</sup> Digit	Definition	2 <sup>nd</sup> Digit	Definition
6	Protected against access to hazardous parts. Dust-tight.	7	Protected against the effects of temporary submersion in water. Test requires 30 minutes at 1 meter depth.
		8	Protected against the effects of temporary submersion. Customer specification applies and specific testing may be required.
		9K	Protects against high pressures associated with steam cleaning.

# RES-1000



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New Product Line!

## Features

- Based on EMBC-1000
- **CPU** : Intel Core U-series Processor (Skylake-U)
- **Memory** : 1 DDR4 2133MHz (up to 16GB)
- **Display** : 1 DVI
- **M12 I/O** :
  - X-coded M12 : 2 GigE LAN
  - A-coded M12 : 2 COM, 1 USB2.0 for dual-port
- **Others** :
  - 9V to 36V DC-in
  - Fanless, -30°C to 70°C Operating Temperature
  - **IP67 Rated**
  - **Easy Customized**

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# VIG-100 (arm)

Vecow IoT Gateway

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# VIG-100 series



## Features

- **Processor :** NXP i.MX6 UltraLite **arm** Cortex-A7
- **Memory :** 1 DDR3L SDRAM (512MB)
- **Flash :** 1 NAND Flash (512MB)
- **Storage :** 1 microSD (128GB)
- **I/O :**
  - 2 **M12 LAN**, 4 COM (2RJ45/2DB9), 2 CAN Bus,
  - 1 USB(**OTG**), 8 GPIO, 1 Concole, 1 External SIM
- **Others :**
  - Optional **NB-IoT** module for LPWAN
  - **6V to 40V** Wide Range DC-in
  - Fanless, -25°C to 70°C Operating Temperature
- **OS :** Debian Stretch R01-4.9.11

# USB OTG Function

## || On-The-Go

- First used in late 2001
- **Default** : VIG-100 acts as a **host**
- **OTG Mode** : VIG-100 acts as a **slave**, allowing other USB devices (host), such as USB flash drives, digital cameras, mice or keyboards, to be attached and be read.





# NB-IoT Definition

||

## Narrow Band Internet of Things

## Market Layout of Low Power Wide Area Network (LPWAN)



### Low Power

- **0.1x** GSM power consumption
- Up to a **10 years** of terminal standby



### Wide Area

- 20dB more than traditional GSM
- covers downward to 2<sup>nd</sup> basement



### Low Cost



### Multi-Connections

- **0.1M** devices connecting together at each sector



### Reliability

- **License Band** of 4G LTE base station
- Telecom carriers highly support

New Product Line!

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# UPM-100

↳ UPS Power Module

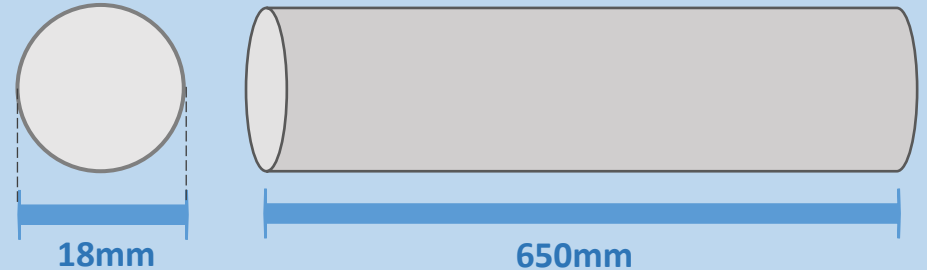
↳ Uninterruptible Power System

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# UPM-100 series

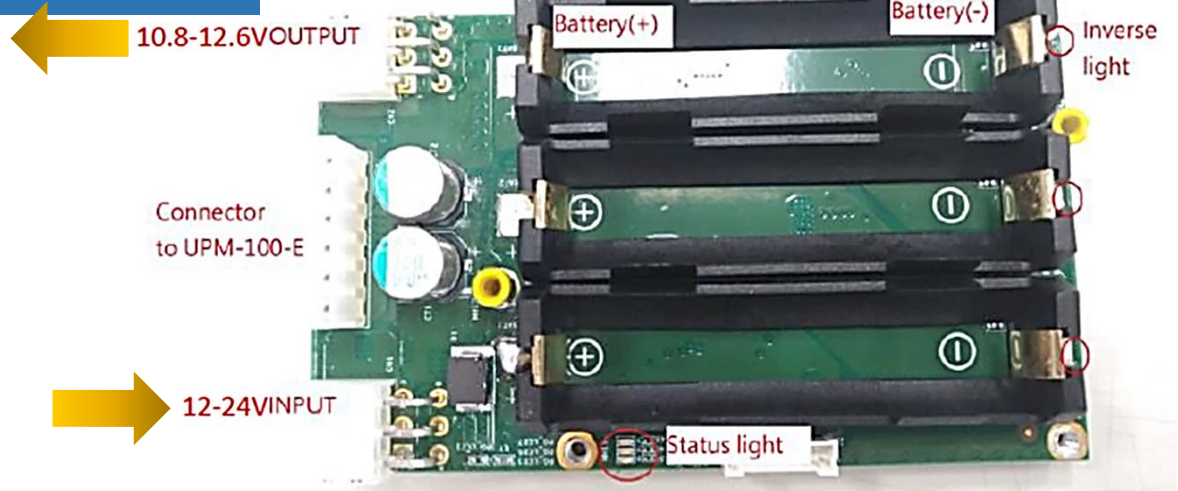
## Features

- **DC Input :** 12 ~ 24V
- **DC Output :** 10.8 ~12.6V ( 3.6V per LFP battery, 3.6\*3 = 10.8 )
- **Others :**
  - LFP cell only
  - Reserved SMBus for BIOS/OS detecting battery status
  - **Stackable 18650** (min 3 cells / Max 9 cells)



- **Run Time =  $(V_{out} * AH) / W = \text{__hr}$**   
e.g. If the system is 100W  
 $10.8 * 1.1 / 100 = 0.12 \text{ hr} = 7.2 \text{ mins}$   
→ it will sustain about 7 mins from a single UPM-100 module

### UPM-100-M



### UPM-100-E



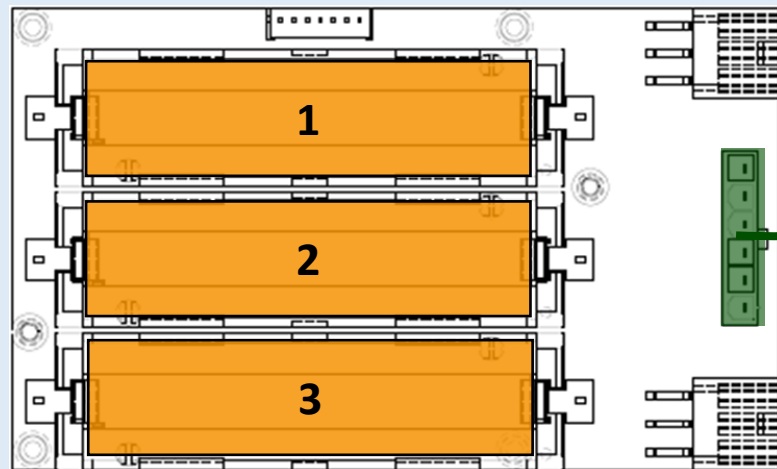
# Stackable UPM Module

- Min 3 cells
- Max 9 cells

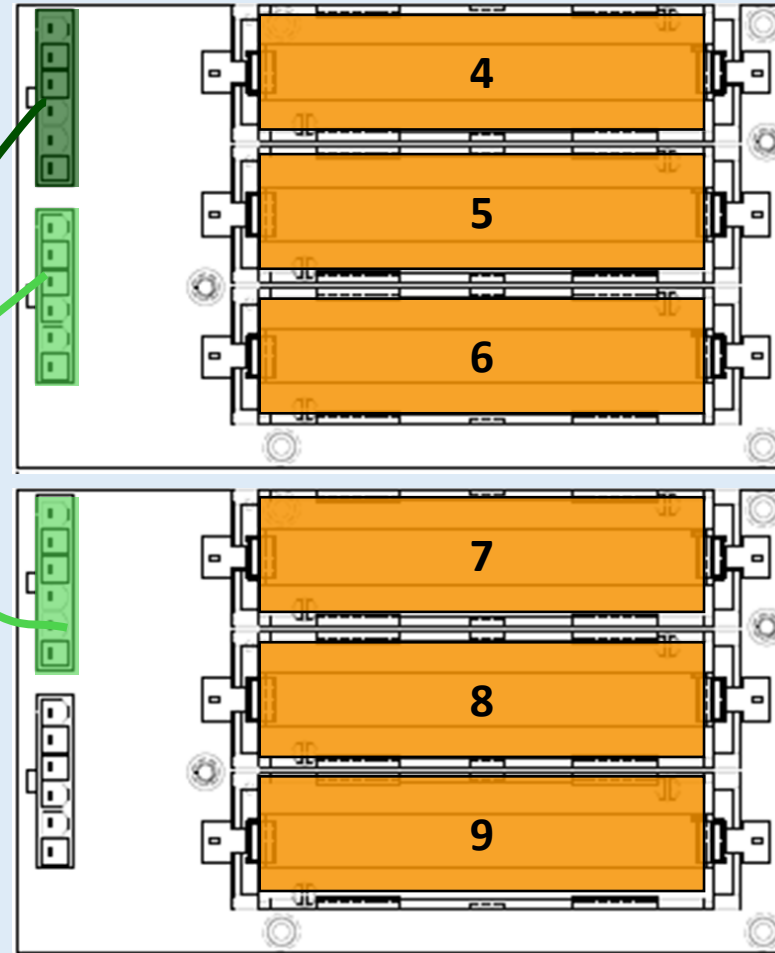
UPM-100-M = 3 cells

UPM-100-M + UPM-100-E = 6 cells

UPM-100-M + 2\*UPM-100-E = 9 cells



**UPM-100-M**



**UPM-100-E**

**Q & A**  
**MANY THANKS!**

31415926535 8979323846 26433383279  
5028841971 6939937510 5820974944  
5923078165 0628620899 8628034825  
3421170679 8214808651 3282306647  
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