

# BM3600

Book Mounting fanless IPC based on Intel® Kaby Lake platform



DIGITAL AUTOMATION TECHNOLOGIES

# BM3600 – Book Mounting IPC concepts



## 'on top' interfaces

- Ergonomic cabling
- Reduced installation space
- Protection against accidentally cable disconnection



## 'on front' interfaces

- Better visibility of signals/warnings
- Better access to removable devices like extractable drawers for HDD/SSD



## Chassis & Expandability

- Full aluminium
- Compact, solid and robust
- Expandability ensured by two PCI/PCIe slots (S2 version)



## Thermic dissipation

- Fanless operation and 0÷50°C operating temperature even with Core i7 processor

# BM3600 - Highlights



BM3600 S0

- **Fanless book mounting PC** (0÷50°C operating temperature)
- **ASEM UBIQUITY Basic Win32/64** runtime included
- Intel® **Kaby Lake** platform
  - Intel® Core™ **i3-7100E** 2,9Ghz, 2 cores – 4 threads – 3MB smart cache
  - Intel® Core™ **i5-7440EQ** 2,9Ghz (3,6Ghz Turbo), 4 cores – 4 threads – 6MB smart cache
  - Intel® Core™ **i7-7820EQ** 3,0Ghz (3,7Ghz Turbo), 4 cores – 8 threads – 8MB smart cache
- **RAM** System memory expandable up to **32GB**
- **Mass storage** 1 x CFast, 1 x mSATA SSD and 2 x 2,5" HDD/SSD with SATA III interface also with extractable drawers and RAID 0, 1 configurations
- Integrated **Remote Video Link video output** for remotation of DVI-D and USB 2.0 signals up to 100 m (optional)
- **Isolated 24V DC power supply** input and optionally
  - UPS with external battery pack
- **2 x PCIe x4** or **1 x PCI + 1 x PCIe x4** slot (S2 version)



# BM3600 – Features 1/2



BM3600 S0



BM3600 S2

		BM3600 S0	BM3600 S2
PROCESSOR	Soldered	Intel® Core i3-7100E 2.90GHz 64bit, 2 cores / 4 threads, 3MB Smart cache Intel® Core i5-7440EQ 2.90GHz (3.60GHz Turbo) 64bit, 4 cores / 4 threads, 6MB Smart cache Intel® Core i7-7820EQ 3.00GHz (3.70GHz Turbo) 64bit, 4 cores / 8 threads, 8MB Smart cache	
CHIPSET		Intel® HM175 PCH (Platform Controller Hub)	Intel® HM175/CM236 PCH (Platform Controller Hub)
VIDEO CONTROLLER		Intel® HD Graphics 630 integrated in Core i3 processor • 350MHz/950MHz Intel® HD Graphics 630 integrated in Core i5, Core i7 processors • 350MHz/1,00GHz DirectX 12 and OpenGL 4.4 support	
SYSTEM MEMORY - RAM		4GB or 8GB or 16GB or 32GB (2 x SODIMM DDR4 modules)	
MASS STORAGE	D0	1 x bootable CFast SATA III slot on board with external front access 1 x onboard connector for direct insertion of mSATA SSD SATA III 1 x onboard connector for 2,5" SSD/HDD 24x7 SATA III with internal installation kit	
	D1	1 x bootable CFast SATA III slot on board with external front access 1 x onboard connector for direct insertion of mSATA SSD SATA III 1 x onboard connector for 2,5" SSD/HDD 24x7 SATA III with front extractable drawer	
	D2	1 bootable CFast slot on board with front access 1 x onboard connector for direct insertion of mSATA SSD SATA III <u>without RVL</u> : 2 x onboard connector for 2,5" SSD/HDD 24x7 SATA III with front extractable drawers	1 bootable CFast slot on board with front access 1 x onboard connector for direct insertion of mSATA SSD SATA III 2 x onboard connector for 2,5" SSD/HDD 24x7 SATA III with front extractable drawers
RAID		Integrated into chipset Intel® HM175, RAID 0, 1	
LAN		4 x LAN 10/100/1000Mbps, top (3 x Intel® I210 + 1 x Intel® I219LM)	
USB		1 x USB 3.0, front (Type-A) 2 x USB 3.0, top (Type-A) 2 x USB 2.0, top (Type-A)	
SERIAL		1 x RS232, top (DB9M)	
BATTERY		1 x CR2032 removable from the front	

# BM3600 – Features 2/2



BM3600 S0

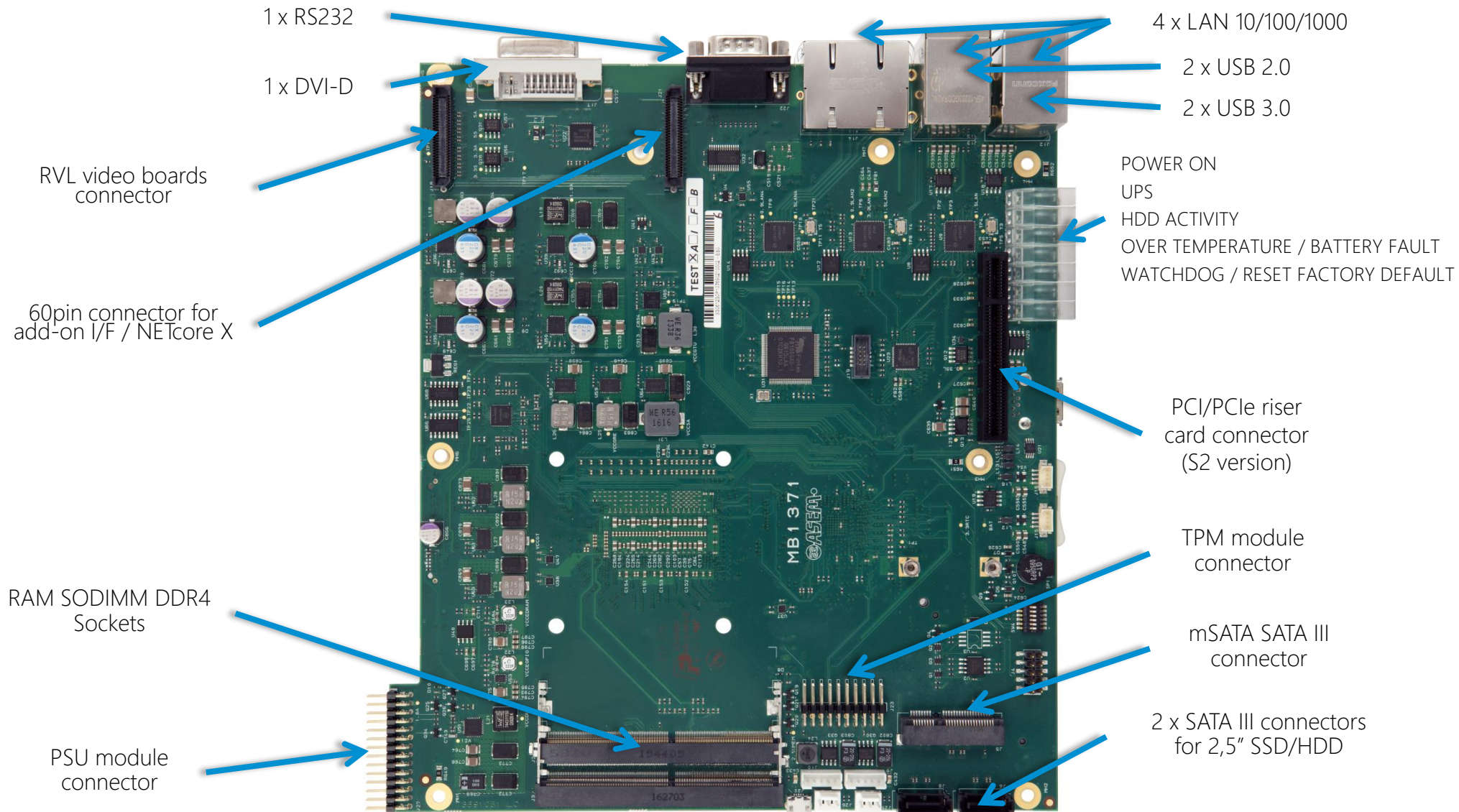


BM3600 S2

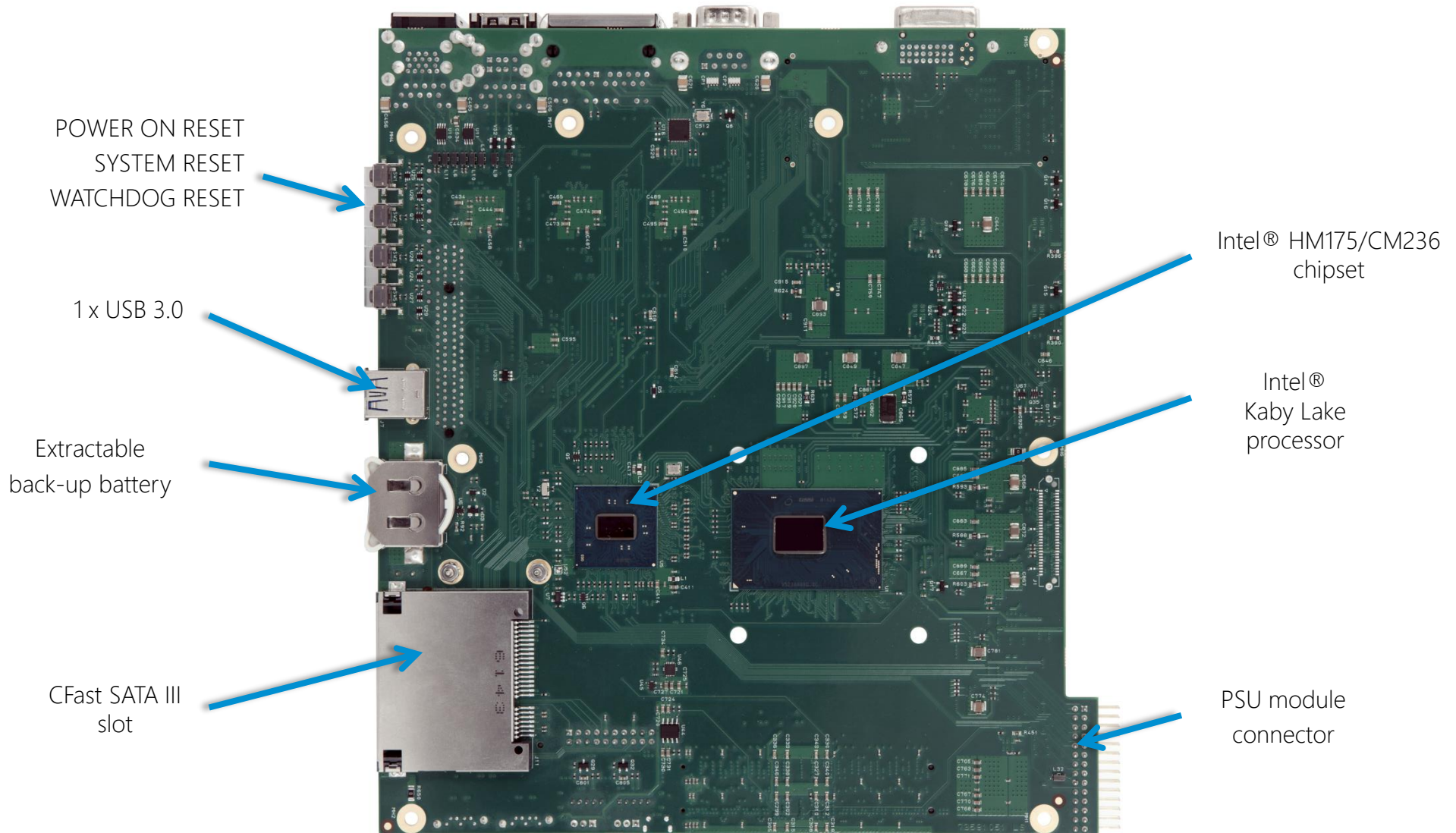
	BM3600 S0	BM3600 S2
<b>VIDEO OUTPUT</b>	1 x DVI-D, top 1 or 2 x RJ45 connector Remote Video Link, top (DVI-D and USB 2.0 up to 100 m, optional*)	
<b>ADD-ON INTERFACES</b>	1 x RS232/422/485 (DB15M) + 1 x USB 2.0 (Type-A), top 1 x RS232/422/485 (DB15M) isolated + 1 x USB 2.0 (Type-A), top 2 x RS232 (DB9M), top 2 x USB 2.0 (Type-A), top	
<b>FIELDBUS</b>	1 x NETcore X fieldbus *	
<b>EXPANSION SLOTS</b>	-	1 x PCI + 1 x PCIe x4 or 2 x PCIe x 4, top Max 10W without fans Max 20W with fans
<b>FORCED VENTILATION</b>	-	2 x tachometric fans with speed control (optional)
<b>POWER SUPPLY UNIT</b>	24VDC isolated or 24VDC isolated with UPS with external battery pack	
<b>CASE</b>	<b>Installation</b>	For book mounting
	<b>Material</b>	Alluminum alloy 6082/5754/5056
<b>O.S. CERTIFIED</b>	Microsoft Windows 10 IoT Enterprise 2016 64bit , Linux	
	Other operating systems, such as VxWorks, QNX, etc., have not been certified by ASEM but they are reasonably supported by the Intel platform after verification of compatibility.	
<b>OPERATING TEMPERATURE</b>	0°- 50°C 0°- 45°C with HDD 24x7 or i7 processor 5°- 45°C with standard HDD	Without fans      0°- 50°C 0°- 45°C with HDD 24x7 or i7 processor
		With fans      0°- 50°C 0°- 45°C with HDD 24x7
<b>APPROVALS</b>	CE, cULus LISTED (61010) pending	

\* Options cannot be installed together

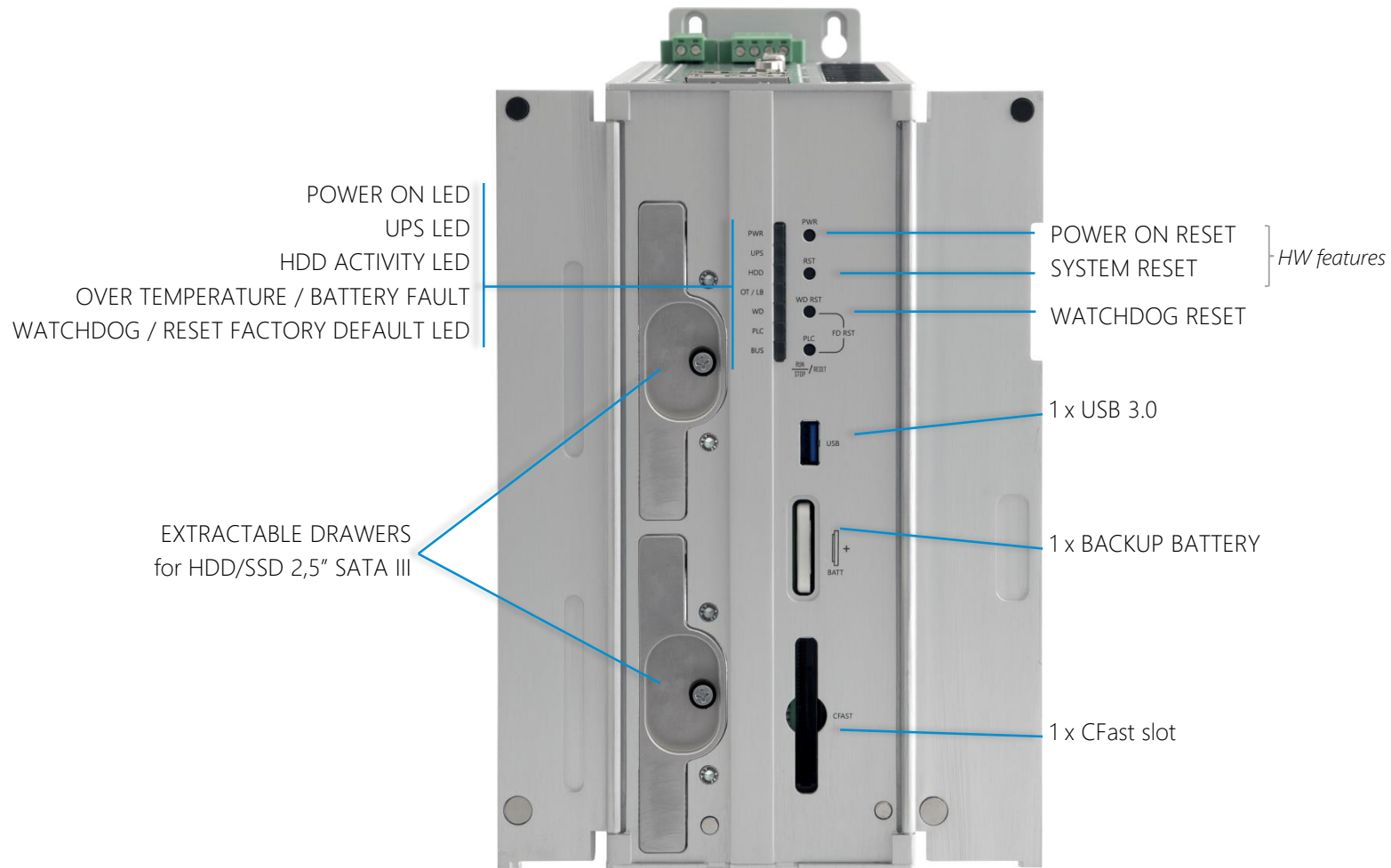
# BM3600 - Motherboard «all-in-one» 1371, top



# BM3600 - Motherboard «all-in-one» 1371, bottom



# BM3600 – Front interfaces & Connectors

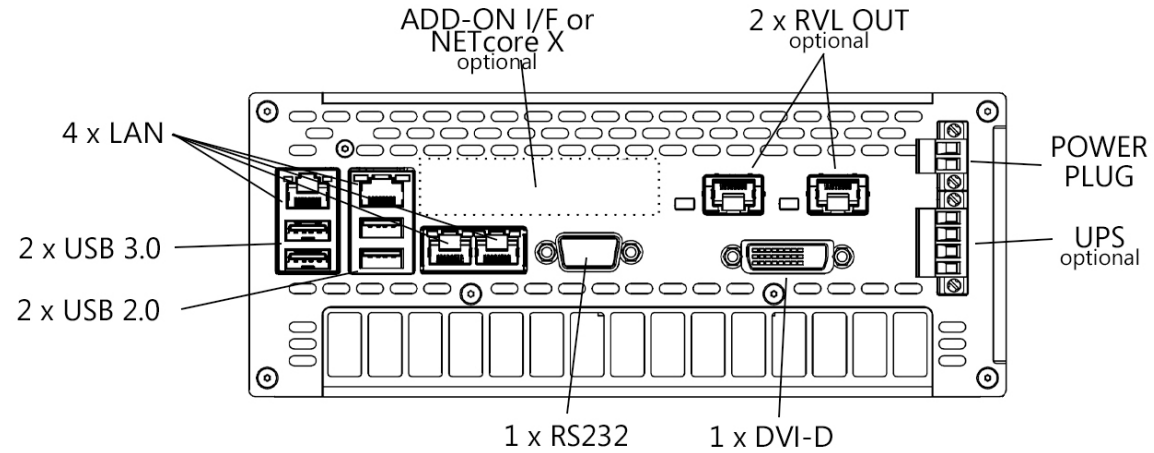


BM3600 S0

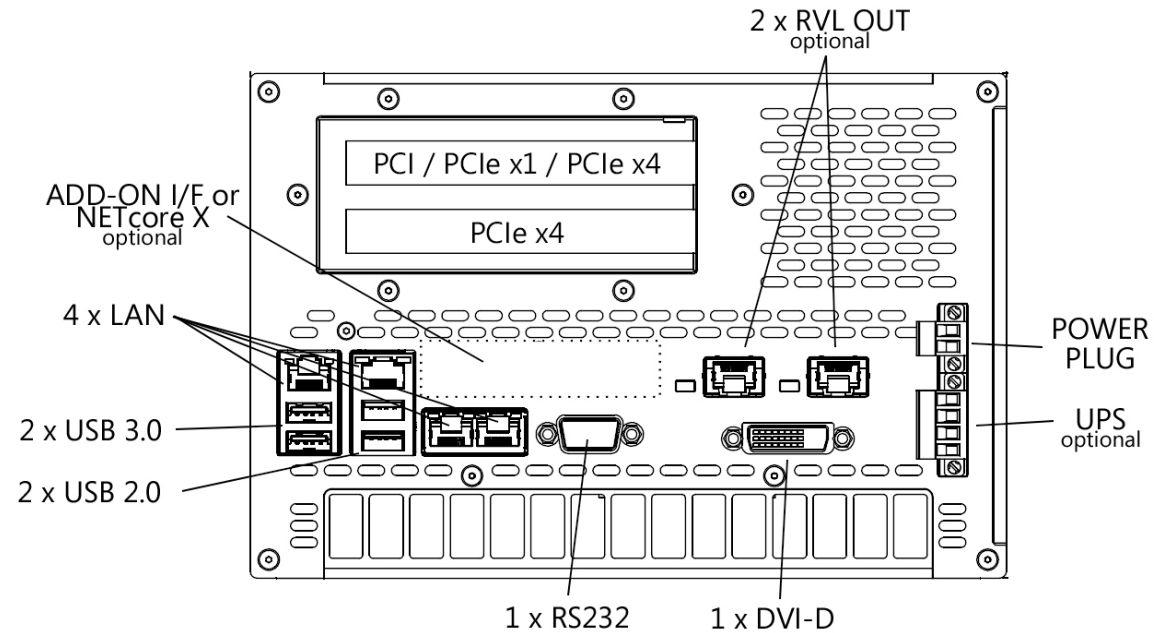


# BM3600 – Top interfaces & Connectors

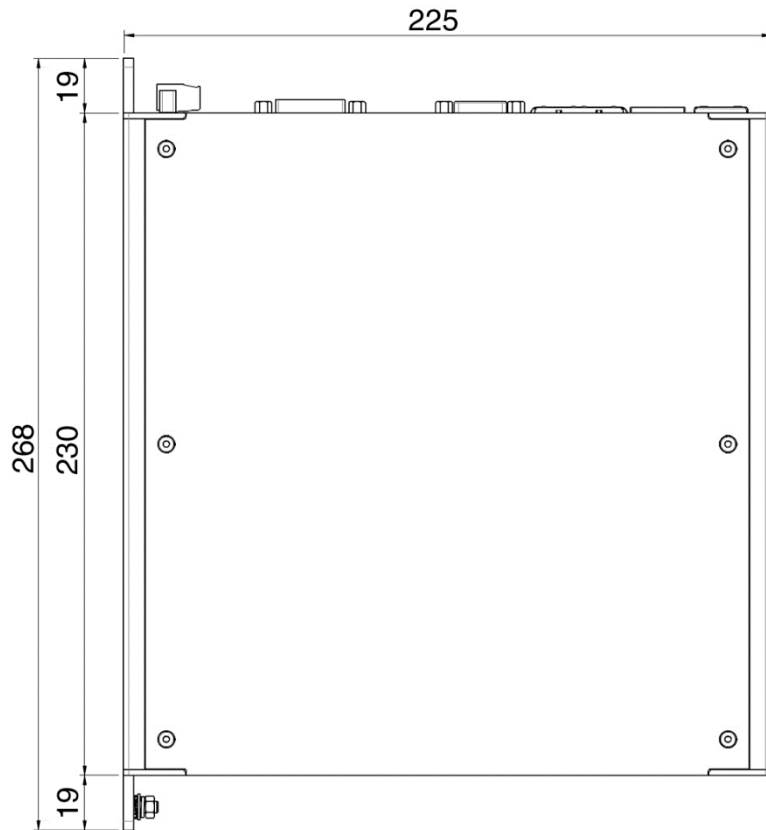
BM3600 S0



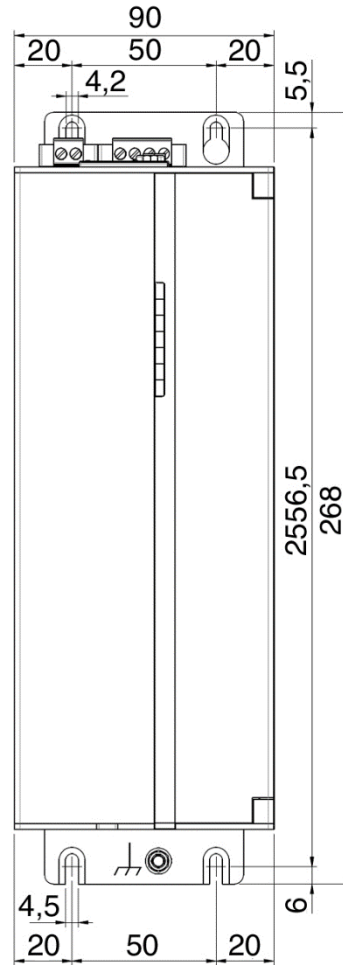
BM3600 S2



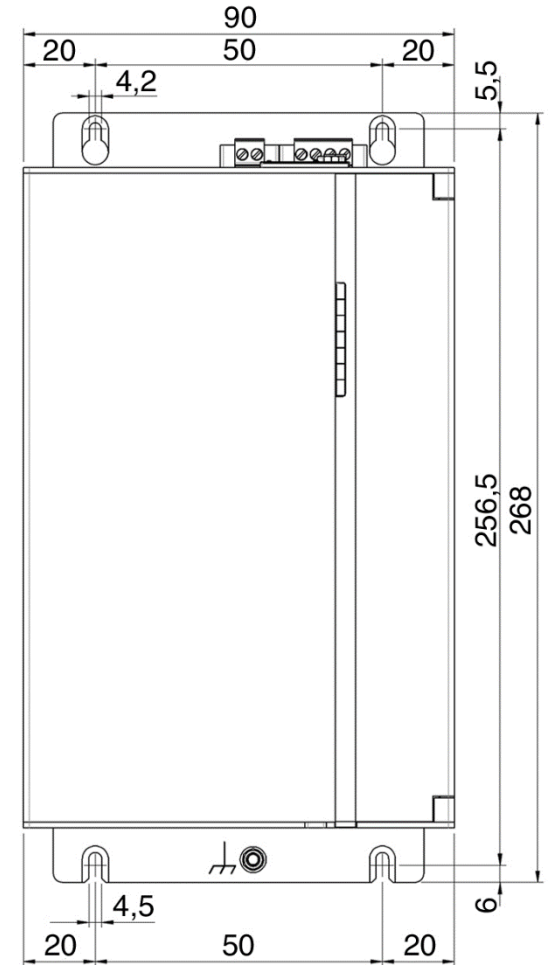
# BM3600 – Dimensions



BM3600 S0

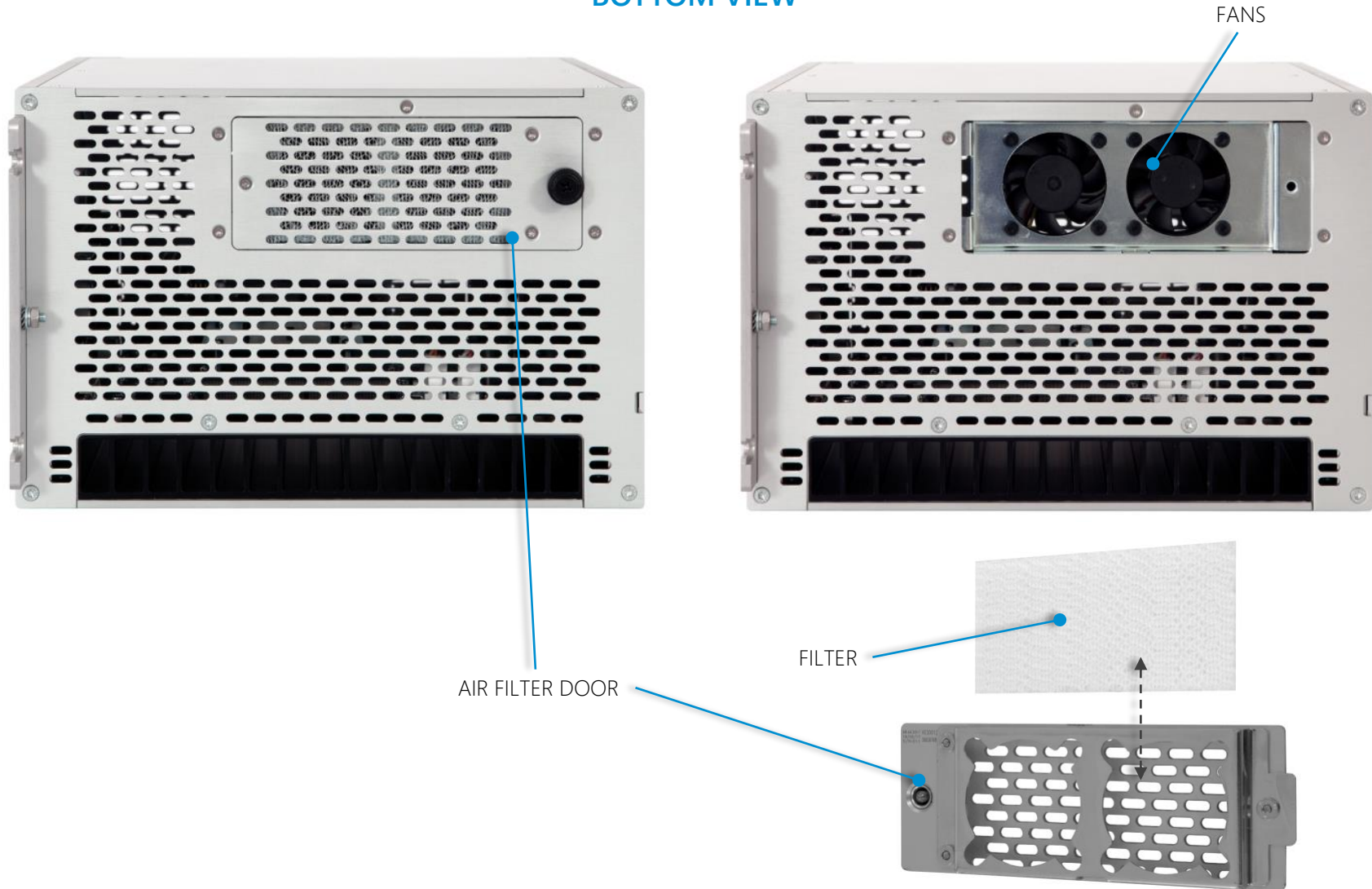


BM3600 S2



# BM3600 S2 – Air filter door (optional)

BOTTOM VIEW

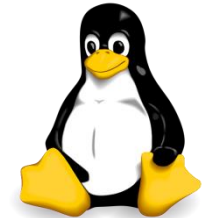


# BM3600 - O.S. compatibility

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- Operating systems **certified by ASEM**

- Win 10 IoT Enterprise 2016 LTSB 64bit
- Linux



- Intel® **Kaby Lake platform** does not support any Microsoft operating system prior to Windows 10.
- The Intel platform can support other operating systems but they are not certified by ASEM

# BM3600 - Integrated UPS (optional)

## UPS integrated in the internal power supply unit

- With external battery pack - standalone wall mounting



## UPS features

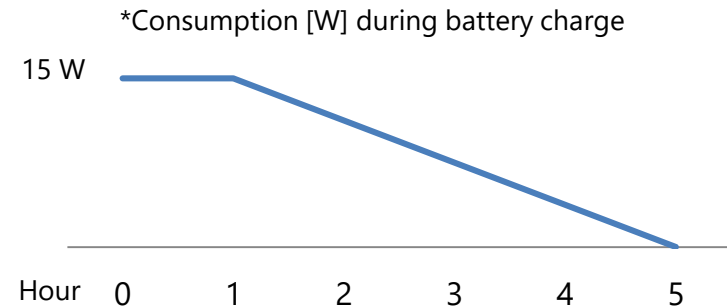
- 12V DC UPS battery backup system
- Input voltage intervention threshold 18V DC
- 10' nominal duration at 25°C, full charge, 5A load (estimated value)
- 15W max consumption during battery charge\*

## External battery pack

- 2500mAh 12V/6A max lead battery (Pb)
- Full charge in 5 hours
- Lifetime 10y at 25°C, full charge

## Software Management Tools

- Smart battery management to extend lifetime
- Battery estimated duration for individual system configuration



# BM3600 - Mass Storage

## CFast

- 1 x bootable CFast SATA III slot on board with external front access



CFast card

## SSD mSATA

- 1 x onboard connector for direct insertion of mSATA SSD SATA III



mSATA SSD

## 2,5" SSD/HDD

- 2 x onboard SATA III connectors for:
  - SSD/HDD 2,5" with internal installation kit
  - HDD/SSD 2,5" with extractable drawers

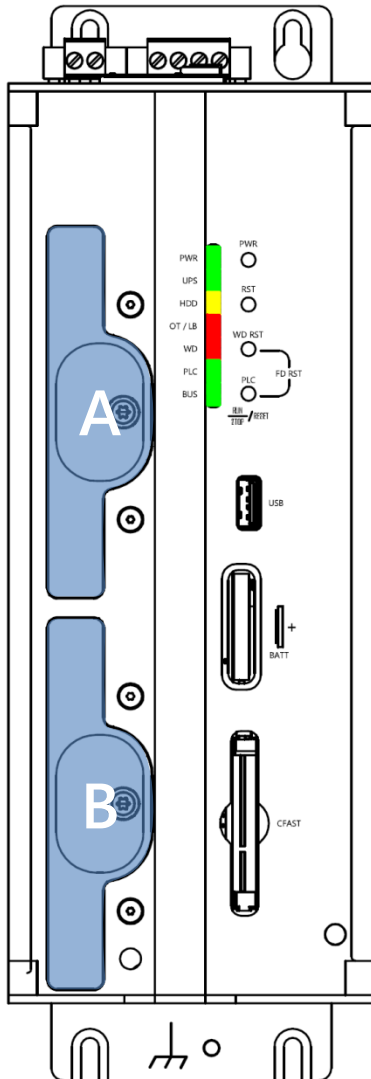
*Configurations depends from installed options*



SSD/HDD 2,5"

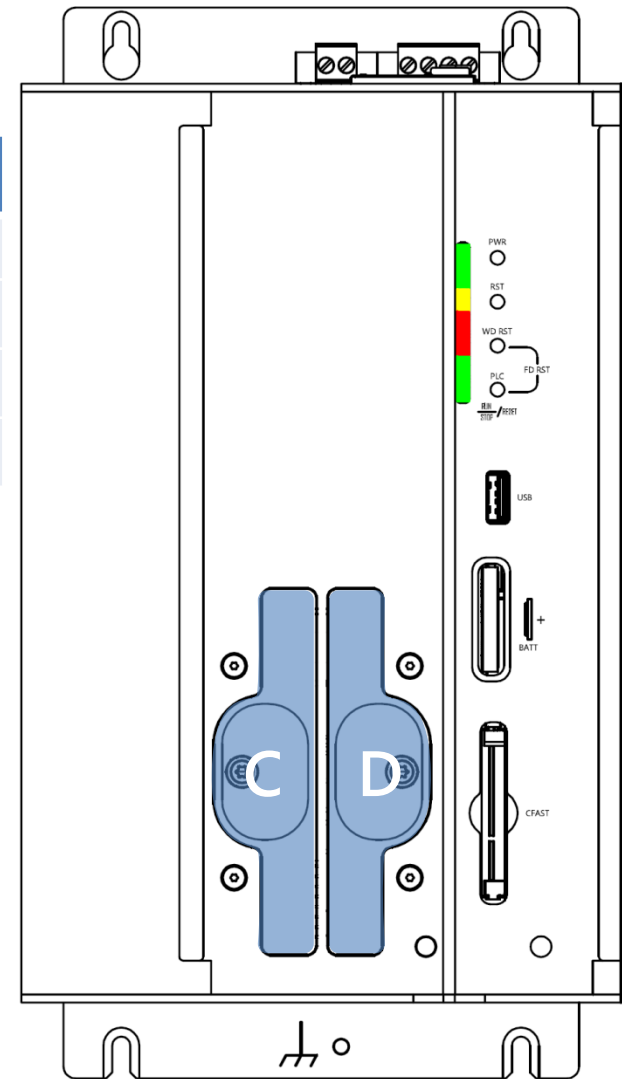
# BM3600 – Extractable drawers configurations

BM3600 S0



VERSION	HDD/SSD	DRAWER	LIMITATIONS
S0	1	B	None
	2	A + B	No RVL
S2	1	C	None
	2	C + D	None

BM3600 S2



# BM3600 - Optional add-on boards

## Position A

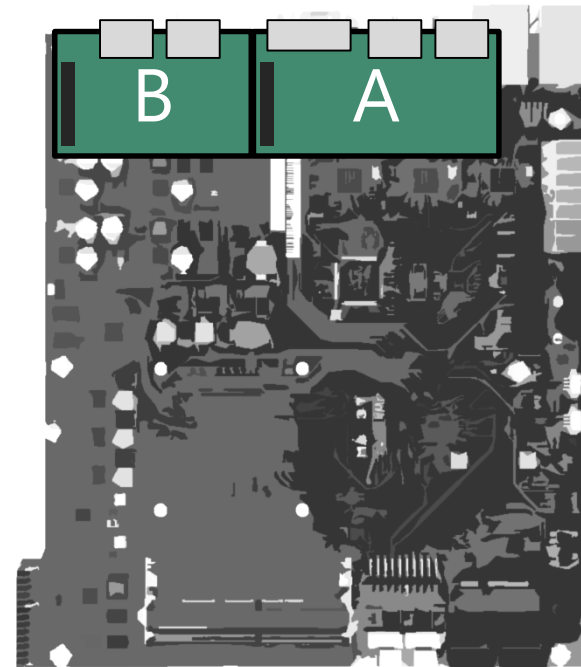
One board among:

- 1 x RS232/422/485 + 1 x USB 2.0
- 1 x RS232/422/485 isol.+ 1 x USB 2.0
- 2 x RS232
- 2 x USB 2.0
- 1 x NETcore X fieldbus board

## Position B

One board between:

- 1 x RJ45 Remote Video Link (RVL OUT)
- 2 x RJ45 Remote Video Link (RVL OUT)



Fieldbus available for NETcore X:  
EtherCAT *Master/Slave*  
PROFINET *Controller/Device*  
EtherNet/IP *Scanner/Adapter*  
PROFIBUS *Master/Slave*  
CANopen *Master/Slave*



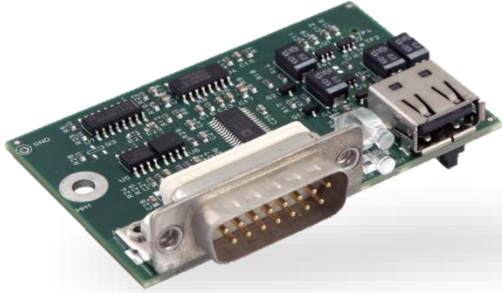
# BM3600 - Expansion slot & add-on

Add-on/Slot \ Version	S0	S2
Add-on	Position A (60pin-H), one board among: <ul style="list-style-type: none"> <li>• 1 x RS232/422/485 + 1 x USB</li> <li>• 1 x RS232/422/485 isolated+ 1 x USB</li> <li>• 2 x RS232</li> <li>• 2 x USB 2.0</li> <li>• 1 x NETcore X fieldbus</li> </ul> Position B (60pin), one board between: <ul style="list-style-type: none"> <li>• 1 x RJ45 RVL OUT</li> <li>• 2 x RJ45 RVL OUT</li> </ul>	
PCI or PCIe x4	No slot	Two boards among: <ul style="list-style-type: none"> <li>• NETcore X APCI</li> <li>• CAN RAW PCI</li> <li>• Customer PCI/PCIe*</li> </ul>

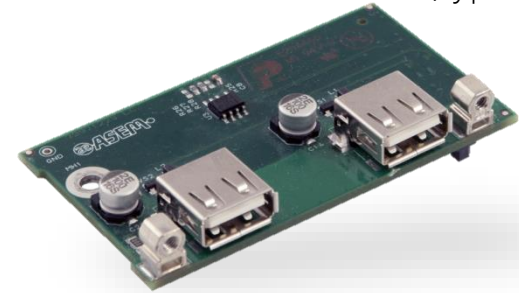
\* Max 10W without fans  
 Max 20W with fans

# BM3600 - Add-on interfaces Position A (optional)

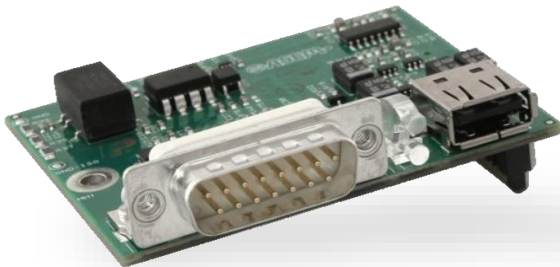
1 x RS232/422/485 (DB15M) + 1 x USB 2.0



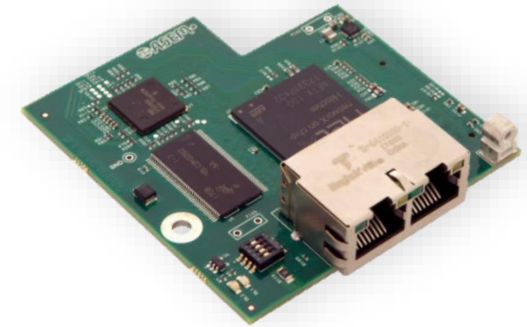
2 x USB 2.0 (Type A)



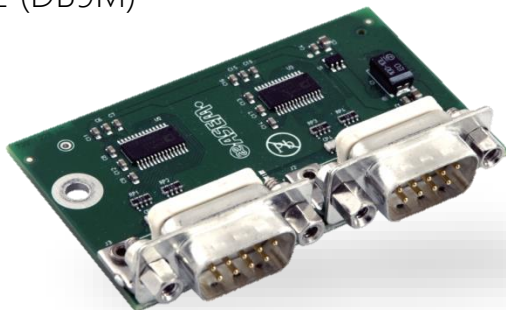
1 x RS232/422/485 optoisolated (DB15M) + 1 x USB 2.0



1 x NETcore X fieldbus



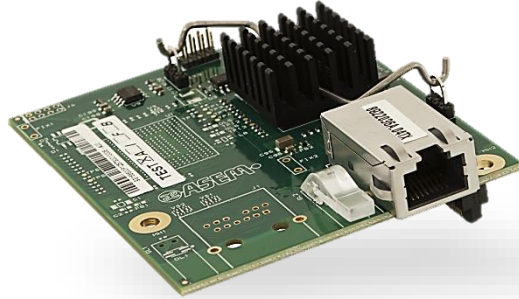
2 x RS232 (DB9M)



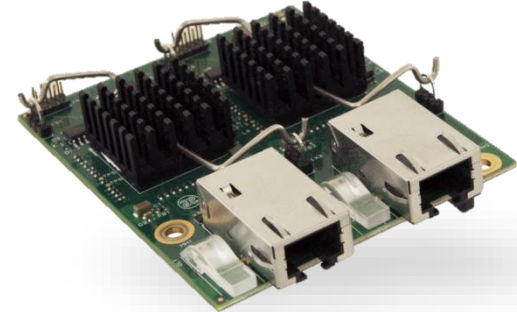
# BM3600 - Add-on interfaces Position B (optional)

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1 x RVL OUT (RJ45)



2 x RVL OUT (RJ45)



# BM3600 - Long term availability



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