

**PCE-7129/5129/5029**

**Sales kit**

# Product Roadmap



# PICMG 1.3 Full-sized CPU board Roadmap

Available
  Developing
  Planning
  Conceptual

Server Grade Dual Xeon

**PCE-7214**

- Intel 5100
- Dual XEON

EOL: Q2 '12

**PCE-9228G2**

- Intel Grantely Dual XEON E5 v3

MP

Server Grade Single Xeon

SUSIAccess

**PCE-7127G2**

- Intel C216

SUSIAccess

**PCE-7128G2**

- Haswell , C226 PCH
- Intel Core i3/Xeon,LGA1150
  - DDR3 ECC 1600
- 2 GbE, USB3.0, SATA3
- Triple Display, IPMI

SUSIAccess

**PCE-7129G2**

- Intel Skylake WS platform
- Intel Core i3/Xeon,LGA1151
  - DDR4 ECC 2133
- 2 GbE, USB3.0, SATA3
- M.2 PCIe4 SSD supported
- Triple Display, IPMI

Dec'15

Mainstream Core i

**PCE-5125**

- Intel Q57/3450

SUSIAccess

**PCE-5126**

- Intel Q67/B65/C206

SUSIAccess

**PCE-5127**

- Intel Q77

**PCE-5124**

- Intel Q35

EOL: Q3 '14

**PCE-5120**

- Intel 945G

EOL: Q2 '14

SUSIAccess

**PCE-5128G2**

- Haswell , Q87 PCH
- Intel Core i7/5/3,LGA1150
  - DDR3 1600
- 2 GbE, USB3.0, SATA3
- Triple Display

SUSIAccess

**PCE-5129G2**

- Intel Skylake platform
- Intel Core i7/i5/i3,LGA1151
  - DDR4 2133
- 2 GbE, USB3.0, SATA3
- M.2 PCIe4 SSD supported
- Triple Display

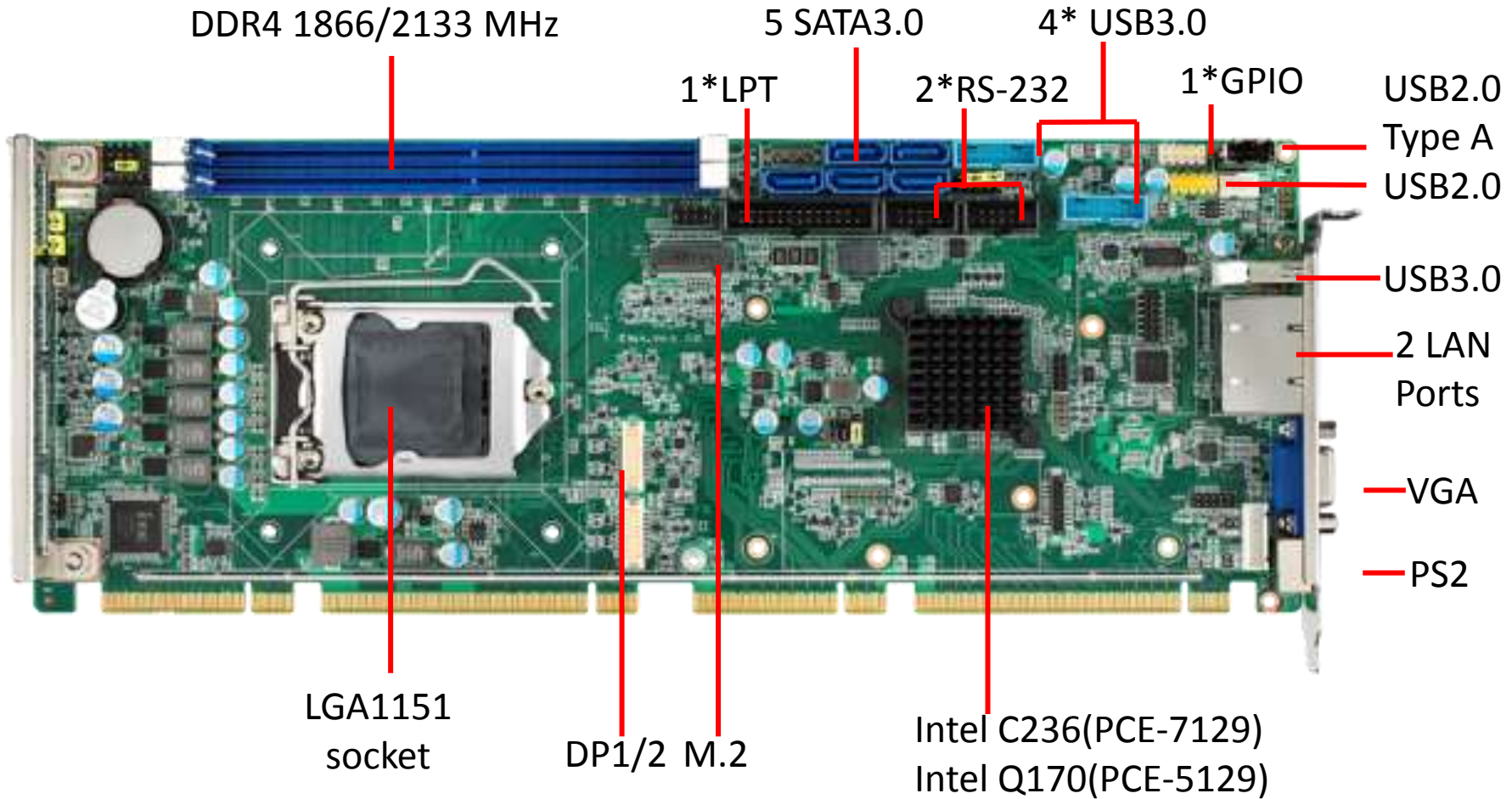
Dec'15

# Product Overview

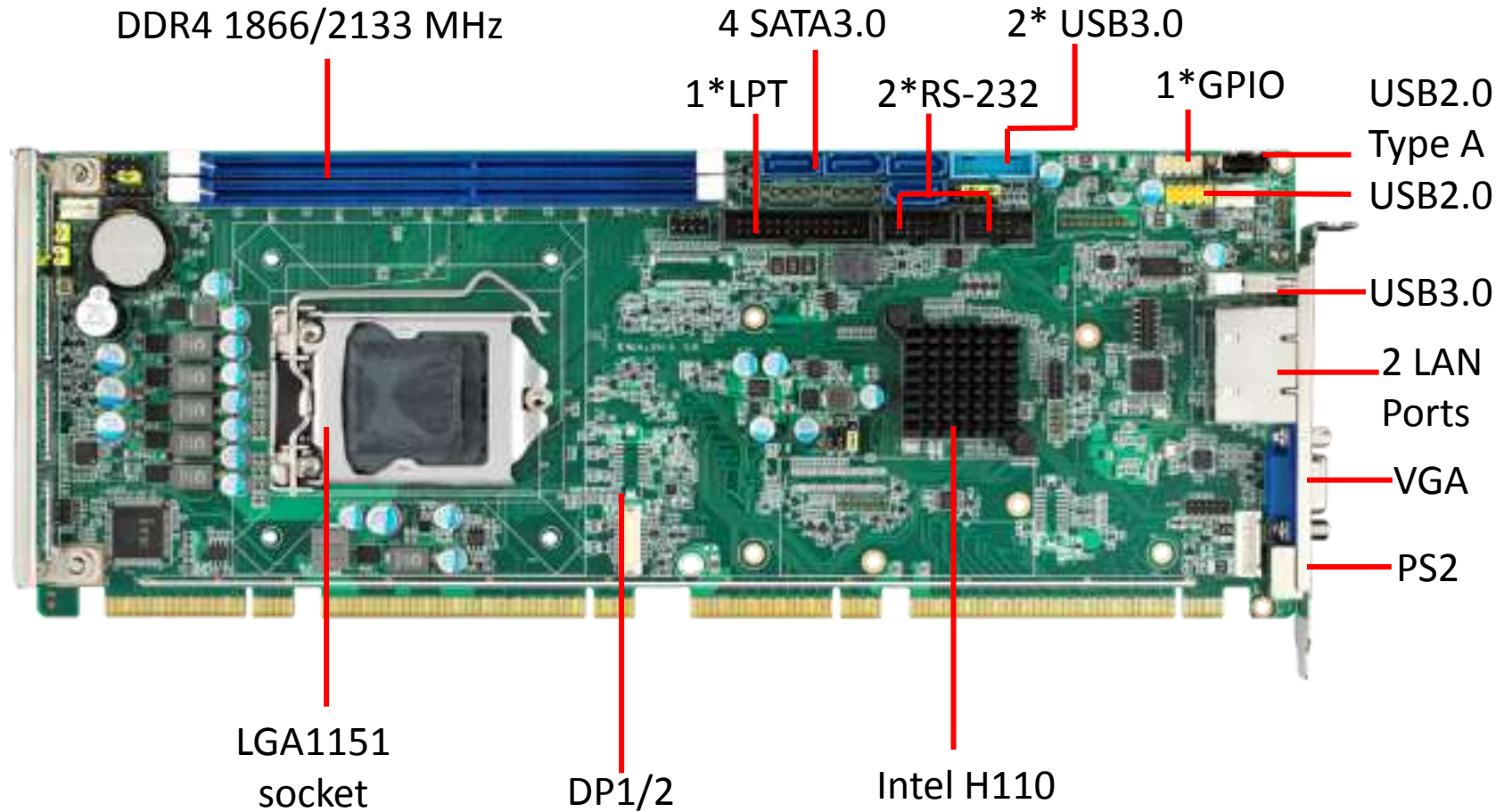




# PCE-7129/5129 Quick View



# PCE-5029 Quick View



**Note:**  
PCE-5029G2 (Dual LAN)  
PCE-5029VG(Single LAN)

# PCE-7129 Specification

- PICMG1.3 workstation system host board
- Intel Skylake platform with 6<sup>th</sup> gen Xeon E3 and Core i processors and C236 PCH
- 32GB DDR4 ECC/Non-ECC 1866/2133 MHz Memory(16GB/DIMM)
- 5 SATA III with SW RAID 0, 1, 5, 10
- M.2 2280 Type M(Support SATA3.0 and PCIe4 (Gen3.0))
- 5 USB 3.0 + 7 USB2.0(4 on BP)
- Triple independent display with VGA+DVI-D/DP+DVI-D/DP (optional DVI and DP cable)
- Dual GbE: i219LM and i210AT
- 2 RS-232
- Support Advantech LPC modules(TPM: PCA-TPM-00A1E; RS-232: PCA-COM232-00A1E; RS-422/485: PCA-COM485-00A1E)
- Remote Management: Support Intel AMT, SUSIAccess, SNMP Sub-agent
- EMC Certificate: CE/FCC Class A

# PCE-5129 Specification

- PICMG1.3 workstation system host board
- Intel Skylake platform with 6<sup>th</sup> gen Core i processors and Q170 PCH
- 32GB DDR4 Non-ECC 1866/2133 MHz Memory(16GB/DIMM)
- 5 SATA III with SW RAID 0, 1, 5, 10
- M.2 2280 Type M(Support SATA3.0 and PCIe4 (Gen3.0))
- 5 USB 3.0 + 7 USB2.0(4 on BP)
- Triple independent display with VGA+DVI-D/DP+DVI-D/DP (optional DVI:1700021831-01 and DP: PCE-DP10-00A1E cable)
- Dual GbE: i219LM and i211AT
- 2 RS-232
- Support Advantech LPC modules(TPM: PCA-TPM-00A1E; RS-232: PCA-COM232-00A1E; RS-422/485: PCA-COM485-00A1E)
- Remote Management: Support Intel AMT, SUSIAccess, SNMP Sub-agent
- EMC Certificate: CE/FCC Class A



# PCE-5029 Specification

- PICMG1.3 workstation system host board
- Intel Skylake platform with 6<sup>th</sup> gen Core i processors and H110 PCH
- 32GB DDR4 Non-ECC 1866/2133 MHz Memory(16GB/DIMM)
- 4 SATA III with SW RAID 0, 1, 5, 10
- 3 USB 3.0 + 7 USB2.0(4 on BP)
- Dual independent display with VGA+DVI-D/DP (optional DVI:1700021831-01 and DP: PCE-DP10-00A1E cable)
- Dual GbE: i219LM and i211AT
- 2 RS-232
- Support Advantech LPC modules(TPM: PCA-TPM-00A1E; RS-232: PCA-COM232-00A1E; RS-422/485: PCA-COM485-00A1E)
- Remote Management: Support Intel AMT, SUSIAccess, SNMP Sub-agent
- EMC Certificate: CE/FCC Class A

# Features



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# Up-to-date Intel Skylake Platform

## ➤ Processor Performance

- ✓ Up to **24%** increased CPU performance over 4th Gen Intel® Core™ processor

## ➤ Chipset Performance

- ✓ Greater PCH I/O & port speed: USB3.0 & SATA 3.0
- ✓ Support **PCIe Gen3.0** links from PCH

## ➤ New Technology DDR4 memory

- ✓ Improving capacity (**up to 32GB**) and performance scalability
- ✓ Increasing market share as the mainstream due to Intel platform support in 2015

## ➤ Graphics Performance:

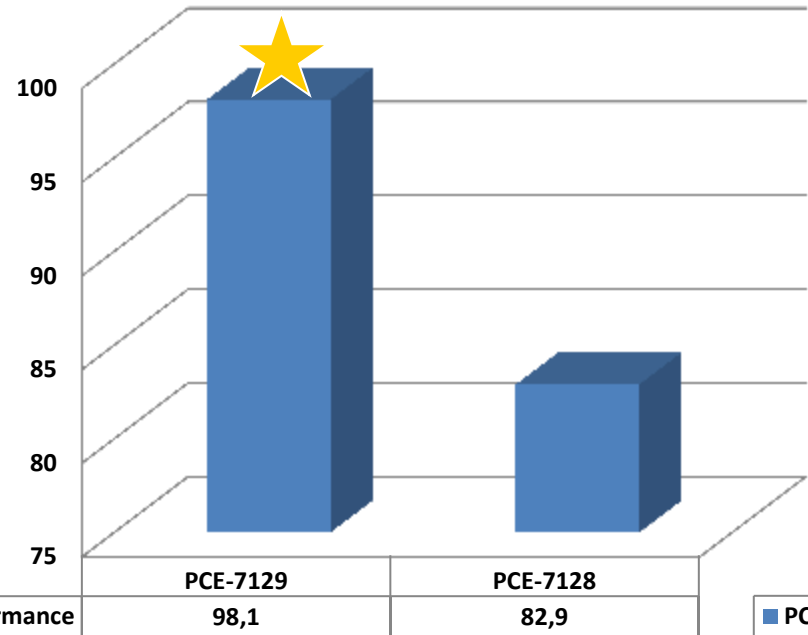
- ✓ Up to **35%** graphics performance improvement over 4<sup>th</sup> Gen Intel® Core™ processor



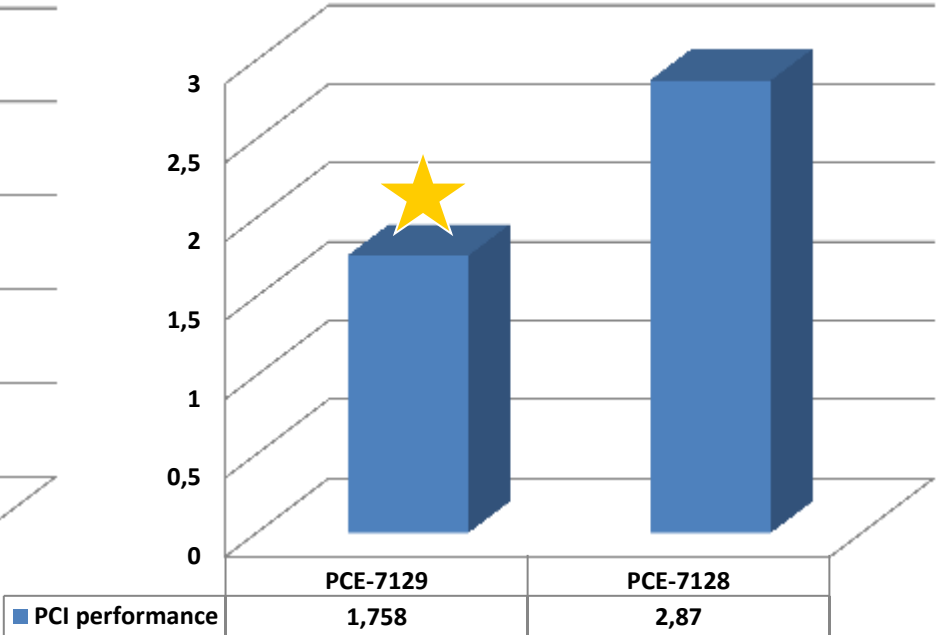
# PCI performance improvement

Optimized PCI performance around **+18%** and improve around **+39%** on response time

PCI performance  
Raid card throughput(MB/s)



PCI performance  
MEM response time(ns)



Note:  
\*Test under Dos mode  
\*Lower is better

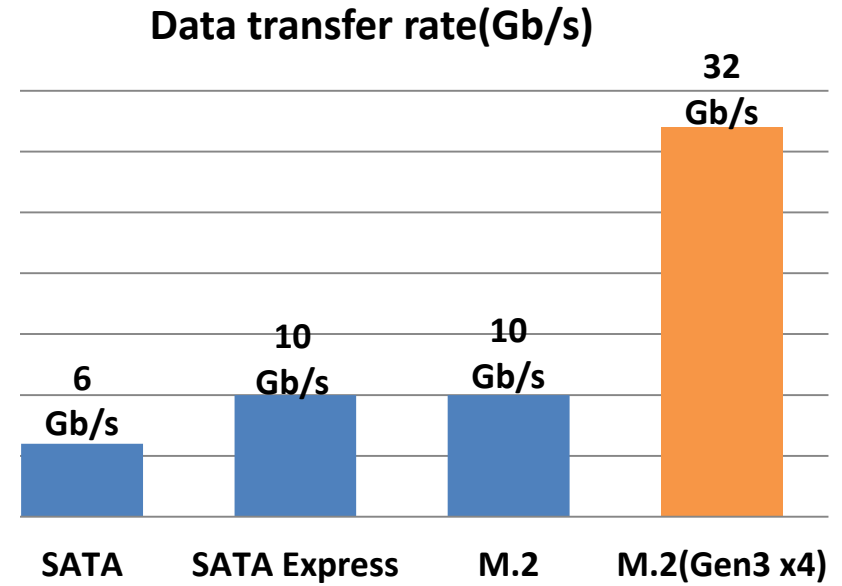
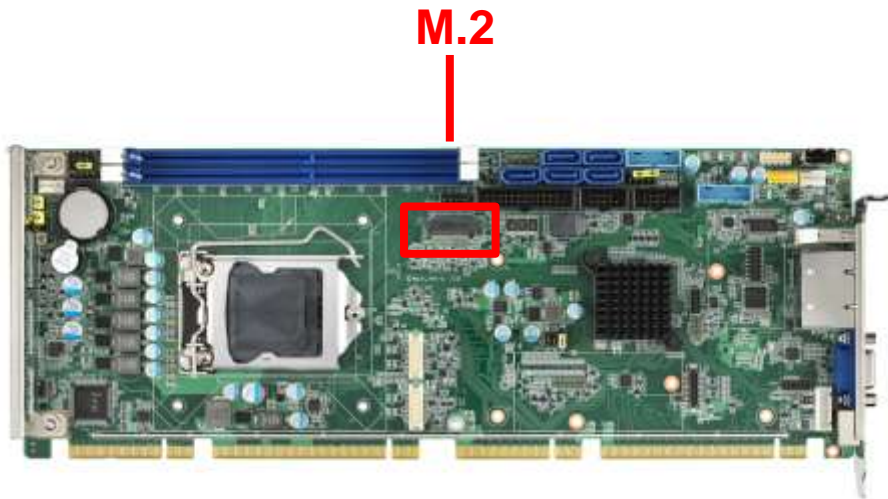
Test configuration:  
PCE-7129  
CPU: Skylake E3-1275V5 3.6G  
RAM: DDR4 2133 ECC 8G\*2  
Test BP :PCE-7B09R-04

PCE-7128  
CPU : Haswell E3-1275V3 3.5G  
RAM: DDR3 1600 8G\*2  
Test BP :PCE-7B09R-04



# M.2(NGFF)

- PCE-7129/5129 features M.2 2280 Type M connector and it can support both SATA3.0 and PCIe4 (Gen3.0) storage device.



Note: PCIe interface SSD is estimated MP in Q2 to Q3(Advantech, Trensend)

# On-board Type-A USB Connector



Type A USB 2.0 for  
USB dongle key



## ■ Application:

1. Boot operation system
2. Pre-load image file
3. Specific program
4. Security concerned data
5. Recover and backup OS image

# Internal Socket for Trusted Platform Module (TPM)

The **Trusted Platform Module** offers facilities for the *secure generation of cryptographic keys*, and *limitation of their use*, and a hardware *pseudo-random number generator*

Where TPM Uses:

1. Platform Integrity
2. Disk encryption
3. Password Protection
4. Digital rights management
5. Software license protection & enforcement



PCA-TPM-00A1E  
(Optional)



For Some Detail of Infineon TPM, please check the link

<http://www.infineon.com/cms/en/product/chip-card-and-security-ics/embedded-security/trusted-computing/trusted-platform-module-tpm1.2-pc/channel.html?channel=ff80808112ab681d0112ab6921ac011>

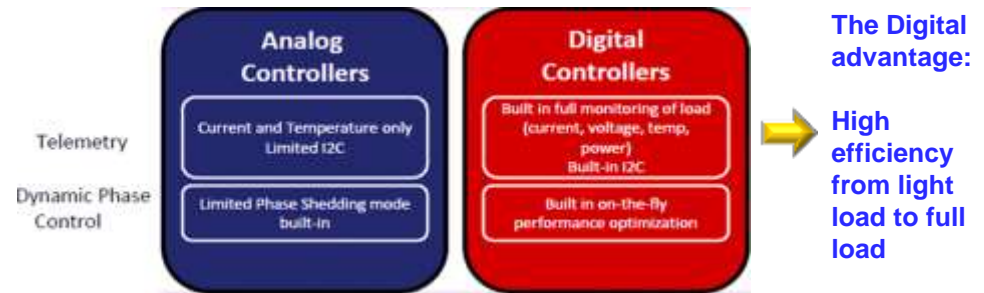
# Designed for Critical Environment Applications ---Solid Capacitor; MTBF; VTT Design

- **Polymer capacitor for high reliability**



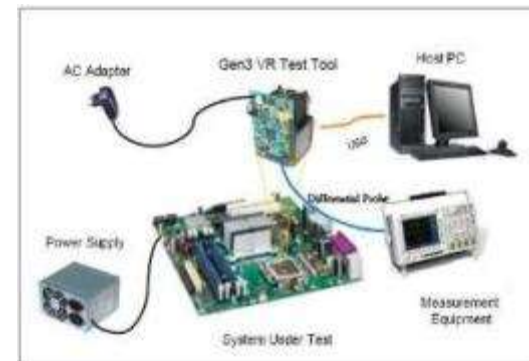
- **Digital power controller**

PCE-7129 has implemented the “digital pulse-width modulation” technology by digital power controller. It can provide higher efficient & stable voltage for the usage of CPU and memory power.



- **MTBF report**  
(Request from your sales rep. if required)

- **Meet Intel VTT design guide and Fully validation**





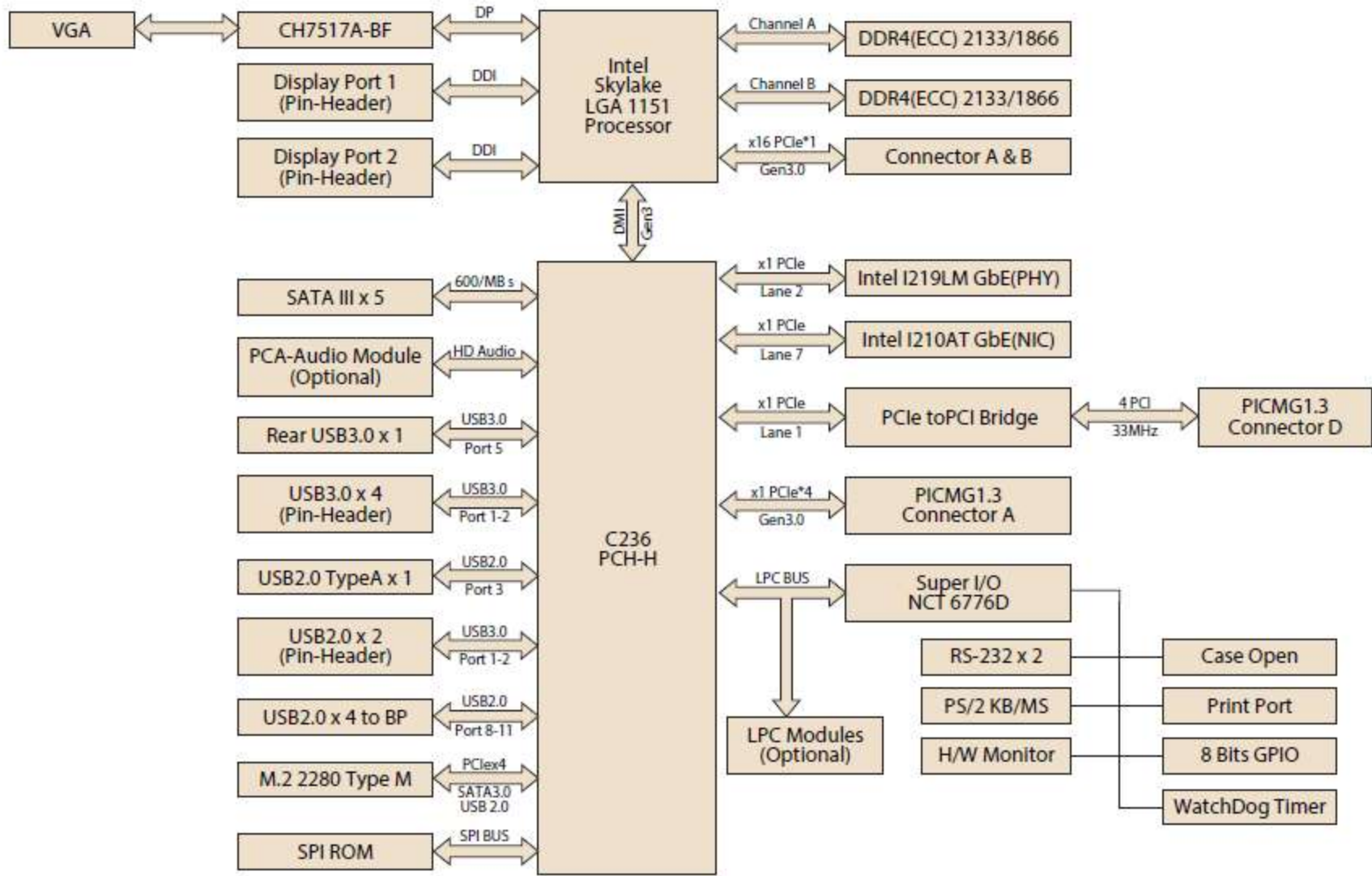
# Product Information



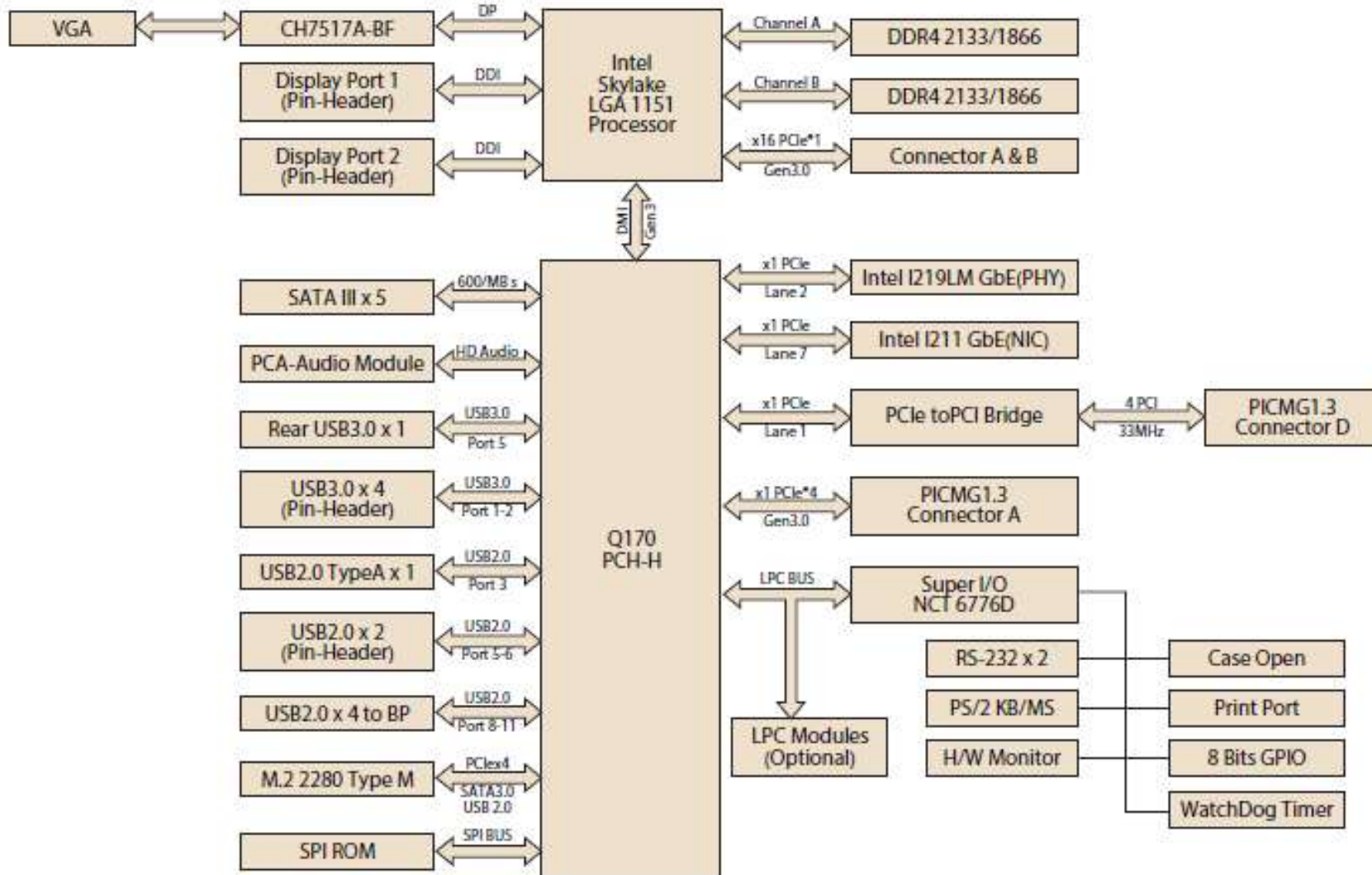
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# Product Diagram-PCE-7129

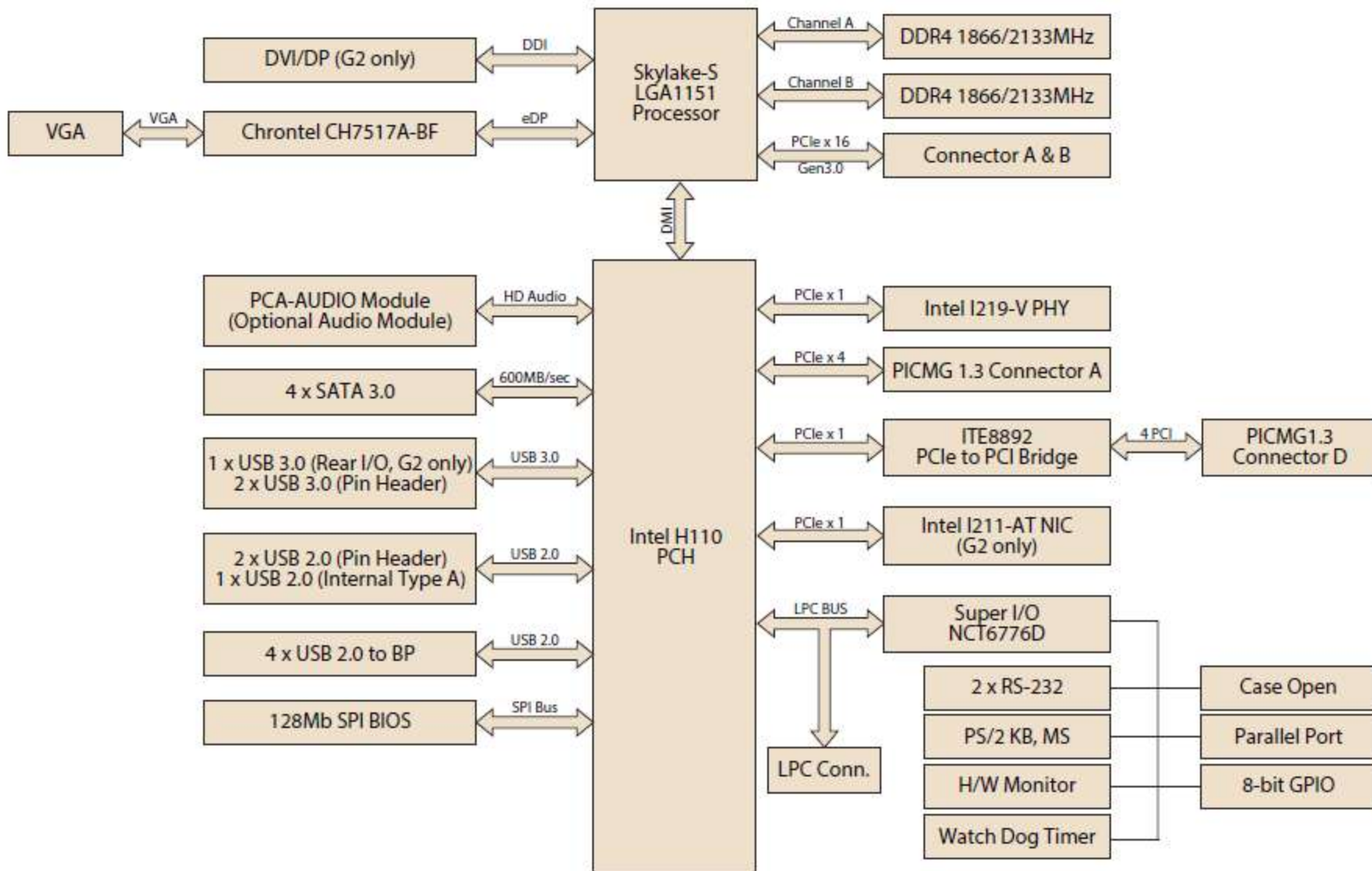


# Product Diagram-PCE-5129



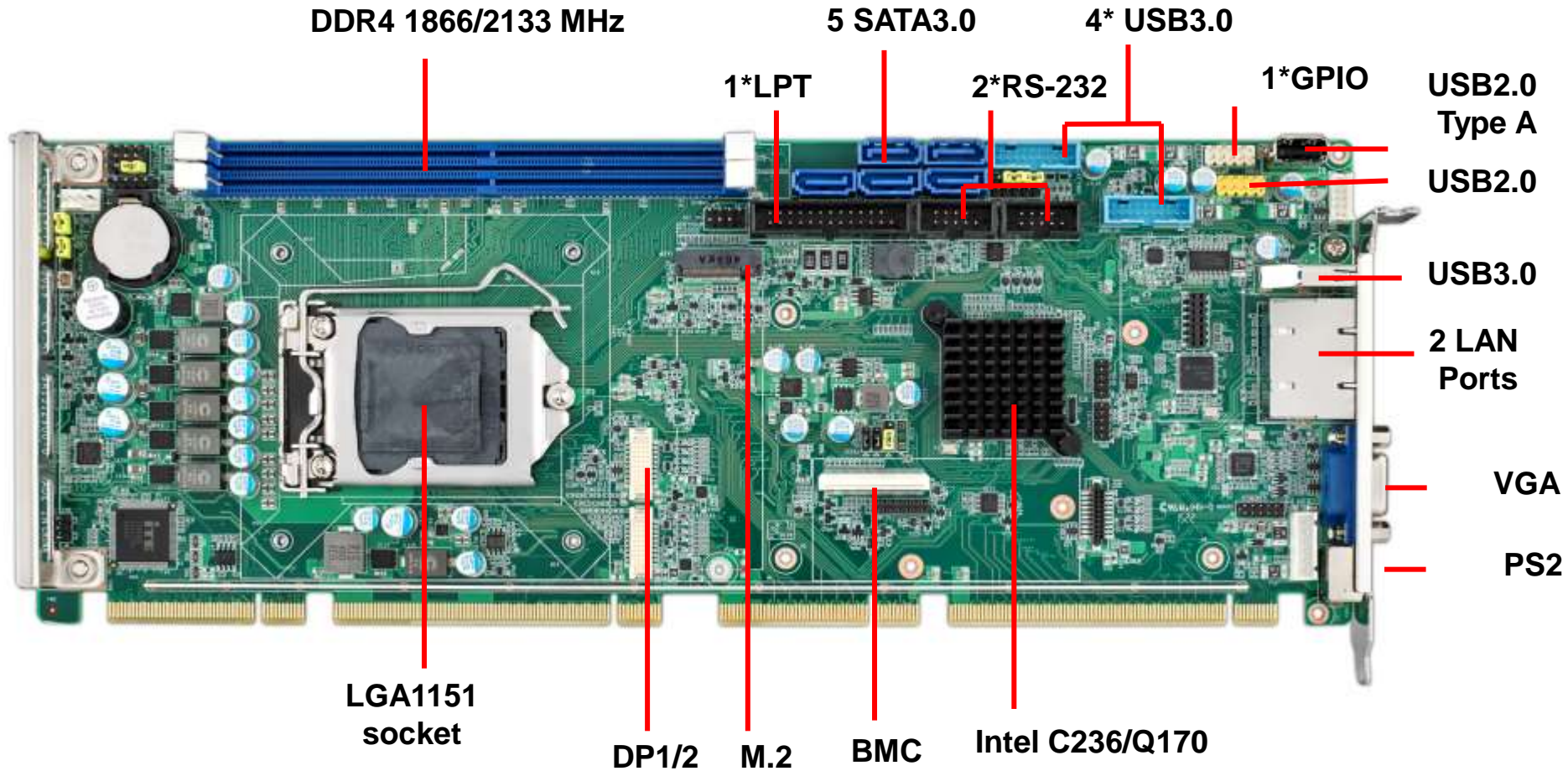


# Product Diagram-PCE-5029





# Product Detail

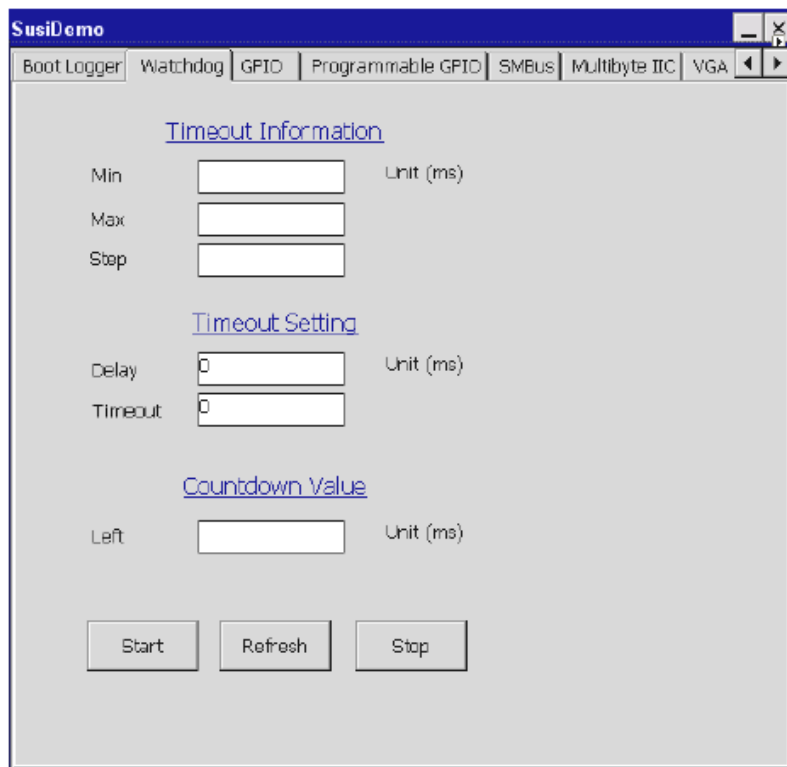


# PCE-7129 v.s PCE-5129 v.s PCE-5029

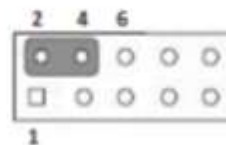
	PCE-7129	PCE-5129	PCE-5029
<b>CPU</b>	6th Gen <b>Xeon E3</b> and Core i series processor	6th Gen Core i series processor	6th Gen Core i series processor
<b>PCH</b>	<b>C236</b>	<b>Q170</b>	<b>H110</b>
<b>Memory</b>	DDR4 2133MHz, Max 32GB	DDR4 2133MHz, Max 32GB	DDR4 2133MHz, Max 32GB
<b>PCIe BUS From SBC</b>	1 x PCIe( <b>Gen3</b> ) x16 or 2 PCIe x8  1 x PCIe( <b>Gen3</b> ) x4	1 x PCIe( <b>Gen3</b> ) x16  1 x PCIe( <b>Gen3</b> ) x4	1 x PCIe( <b>Gen3</b> ) x16  1 x PCIe( <b>Gen3</b> ) x4
<b>Ethernet</b>	I219LM <b>I210AT</b>	I219LM <b>I211AT</b>	I219v <b>I211AT(G2 sku)</b>
<b>SATA</b>	5 (Gen 3)	5 (Gen 3)	5 (Gen 3)
<b>USB</b>	5 USB 3.0 7 USB 2.0	5 USB 3.0 7 USB 2.0	G2: 3 USB 3.0/VG: 2 USB3.0 7 USB 2.0
<b>M.2 2280</b>	1	1	N/A
<b>COM</b>	2 RS-232  Optional PCA-COM232 or COM 422 module for 4 COMs	2 RS-232  Optional PCA-COM232 or COM 422 module for 4 COMs	2 RS-232  Optional PCA-COM232 or COM 422 module for 4 COMs
<b>VGA</b>	1	1	1
<b>DVI-D/DP</b>	2	2	1
<b>PS/2</b>	1 (keyboard, mouse) on rear I/O  1x internal box header, (optional cable & bracket: 1700019268-11& 1960063434N000)		
<b>LPT</b>	1	1	1

# Watchdog Timer

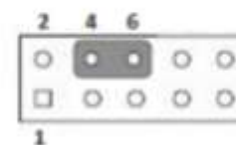
- A watchdog timer (WDT) is a device that performs a specific operation after a certain period of time if something goes wrong and the system does not recover on its own. A watchdog timer can be programmed to perform a warm boot (restarting the system) after a certain number of seconds.



JWDT1: Watchdog timer output option	
Closed Pins	Result
2-4	NC
4-6	System reset*
* Default	



NC 2-4 Closed



\*System Reset 4-6 Closed

\*Check hardware function enabled

\*Advantech provides API and SUSI demo utility

# Ordering Information

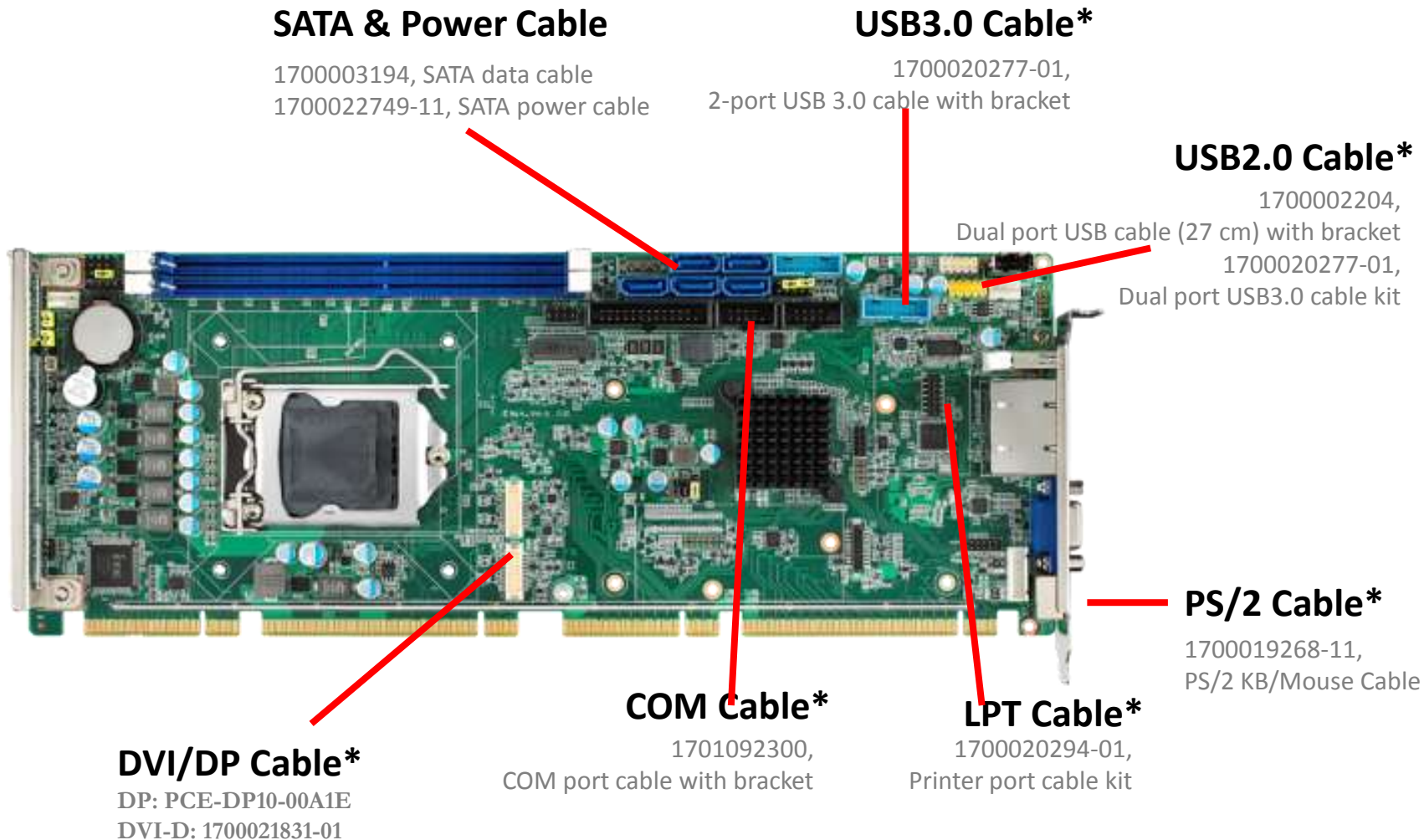


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# Interface and Cables



- Optional part
- DP can support 1920 x1080 resolution

# Ordering Information-PCE-7129

## Ordering Information

Part Number	PCH	Memory	Backplane	LAN	VGA	DP/DVI-D	COM	SATA III	M.2	USB 2.0	USB 3.0	S/W Raid	AMT
PCE-7129G2-00A1E	C236	ECC/Non-ECC	PCE-5BXX PCE-7BXX	2	Yes	2*	2	5	1	7	5	Yes	Yes

Note: DP/DVI-D cable is optional

## Packing List

Part Number	Description	Quantity
1700003194	Serial ATA HDD data cable	x2
1700022749-11	Serial ATA HDD power cable	x1
1701260305	COM + printer ports cable kit	x1
1700060202	Keyboard and mouse Y-cable	x1
1700002204	2-port USB cable kit	x1
9689000068	Jumper package	x1
2190000902	Warranty Card	x1
2001512910	Startup manual	x1
2061512900	Utility CD	x1

## Optional Accessories

Part Number	Description
1960052651N021	2U CPU cooler (PWM Fan)
1960049408N001	CPU cooler for 1U chassis
PCA-AUDIO-HDA1E	Audio module
PCA-TPM-00A1E	TPM module(Trust Platform management)
PCA-COM232-00A1E	4 Ports RS-232 Module by LPC
PCA-COM485-00A1E	4 Ports RS-485/422 Module by LPC
1700020277-01	2 ports USB 3.0 cable W/ BKT(30cm)
1700021831-01	DP to DVI-D cable w/ BKT
PCE-DP10-00A1E	DP to DP cable w/ BKT

## I/O View



PCE-7129G2-00A1E

# Ordering Information-PCE-5129

## Ordering Information

Part Number	PCH	Memory	Backplane	LAN	VGA	DP/DVI-D	COM	SATA III	M.2	USB 2.0	USB 3.0	S/W Raid	AMT
PCE-5129G2-00A1E	Q170	Non-ECC	PCE-5BXX	2	Yes	2*	2	5	1	7	5	Yes	Yes

Note: DP/DVI-D cable is optional

## Packing List

Part Number	Description	Quantity
1700003194	Serial ATA HDD data cable	x2
1700022749-11	Serial ATA HDD power cable	x1
1701260305	COM + printer ports cable kit	x1
1700060202	Keyboard and mouse Y-cable	x1
1700002204	2-port USB cable kit	x1
9689000068	Jumper package	x1
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1700021831-01	DP to DVI-D cable w/ BKT
PCE-DP10-00A1E	DP to DP cable w/ BKT

## I/O View



PCE-5129G2-00A1E



# Ordering Information-PCE-5029

## Ordering Information

Part Number	Chipset	Memory	Backplane	Display	USB 3.0	USB 2.0	COM	GbE LAN	AMT	SATA	SW RAID	Intelligent System Module Support
PCE-5029G2-00A1E	H110	Non-ECC	PCE-5BXX	VGA + DVI/DP*	3	7	2	2	No	4	No	Yes
PCE-5029VG-00A1E	H110	Non-ECC	PCE-5BXX	VGA	2	7	2	1	No	4	No	No

\*Note: DP cable (P/N: PCE-DP10-00A1E) and DVI-D cable (1700021831-01) is optional.

## Packing List

Part Number	Description	Quantity
1700003194	Serial ATA HDD data cable	x2
1700022749-11	Serial ATA HDD power cable	x1
1701260305	COM + printer ports cable kit	x1
1700060202	Keyboard and mouse Y-cable	x1
1700002204	2-port USB cable kit	x1
9689000068	Jumper package	x1
2190000902	Warranty card	x1
2001512910	Startup manual	x1
2061512900	Utility CD	x1

## Optional Accessories

Part Number	Description
1700020277-01	2-port USB 3.0 cable w/ BKT(30 cm)
1700002204	2-port USB 2.0 cable w/ BKT(27 cm)
1700021831-01	DP to DVI-D cable w/ BKT for G2 sku
1701090401	Single COM cable(40 cm)
1701092300	Dual COM cable(28.5 cm)
1960052651N021	CPU cooler for 2U, 4U, and wallmount chassis
1960049408N001	CPU cooler for 1U chassis
PCA-TPM-00A1E	TPM Module
PCA-COM485-00A1E	4-Port RS-422/485 LPC Module
PCA-COM232-00A1E	4-Port RS-232 LPC Module
PCE-DP10-00A1E	DP redriver board(25 cm) for G2 sku
PCA-AUDIO-HDB1E	Extension module for High Definition Audio

## I/O View



PCE-5029G2-00A1E



PCE-5029VG-00A1E



# Reference



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# CPU Support List

Processor Number	Base Freq(GHz)	Intel Turbo Boost Technology	Last Level Cache	TDP	ECC	Cores/T hreads	Intel AES-NI	Intel AVX	Intel Vpro	AMT	CPU P/N
		Max Single Core Turbo Frequency (Ghz)									
i7-6700	3.4GHz	4.0	8MB	65W	No	4/8	Y	Y	No	No	96MPI7S-3.4-8M11T
i7-6700TE	2.4GHz	3.4	8MB	35W	No	4/8	Y	Y	No	No	96MPI7S-2.4-8M11T1
i5-6500	3.2GHz	3.6	6MB	65W	No	4/4	Y	Y	No	No	96MPI5S-3.2-6M11T
i5-6500TE	2.3GHz	3.3	6MB	35W	No	4/4	Y	Y	No	No	96MPI5S-2.3-6M11T1
i3-6100	3.7GHz	-	4MB	65W	No	2/4	Y	Y	No	No	96MPI3S-3.7-3M11T
i3-6100TE	2.7GHz	-	4MB	35W	No	2/4	Y	Y	No	No	96MPI3S-2.7-4M11T
G4400	3.3GHz	-	3MB	65W	No	2/2	No	No	No	No	96MPPS-3.3-3M11T
G4400TE	2.0GHz	-	3MB	35W	No	2/2	No	No	No	No	96MPPS-2.4-3M11T
G3900	2.8GHz	-	2MB	65W	No	2/2	No	No	No	No	96MPCLS-2.8-2M11T
G3900TE	2.6GHz	-	2MB	35W	No	2/2	No	No	No	No	96MPCLS-2.3-2M11T

# Memory Support List

PN	Brand	Size	Speed	Type	ECC	Vendor PN	Note
AQD-D4U4GE21-SG	Advantech	4GB	DDR4 2133	DDR 4	Y	AQD-D4U4GE21-SG	PCE-7129
-	Advantech	8GB	DDR4 2133	DDR 4	Y	TS1GHR72V1H	PCE-7129
AQD-D4U16E21-SE	Advantech	16GB	DDR4 2133	DDR 4	Y	AQD-D4U16E21-SE	PCE-7129
-	Transcend	4GB	DDR4 2133	DDR 4	N	TS512MLH64V1H	PCE-7129/5129
AQD-D4U4GN21-SG	Advantech	4GB	DDR4 2133	DDR 4	N	AQD-D4U4GN21-SG	PCE-7129/5129
AQD-D4U8GN21-SG	Advantech	8GB	DDR4 2133	DDR 4	N	TS512MLH64V1H	PCE-7129/5129
AQD-D4U16N21-SE	Advantech	16GB	DDR4 2133	DDR 4	N	TS512MHR72V1H	PCE-7129/5129

# OS Support List

OS Certification		Remark
Microsoft	Windows® 10 64bit	
	Windows® 8.1 professional 64bit	
	Windows® 7 Ultimate SP1 32bit	
	Windows® 7 Ultimate SP1 64bit	
	Windows 7 Embedded (32bit)	
	Windows 7 Embedded (64bit)	
	Windows Server 2012 standard 64bit	PCE-7129 only
	Windows Server 2008 Enterprise 64bit	PCE-7129 only
Red Hat	TBD	By request
SUSE	TBD	By request
Fedora	Core_23 x64 x86 English	Installation only
QNX	TBD	By request
Ubuntu	TBD	By request



# Windows 7 OS P/N for ISG Skylake Product

- EHCI Controller Removal:

Since xHCI driver is not natively supported in Windows 7, EHCI removal would impact Windows 7 in installing OS via USB sources. User may install Windows 7 via SATA ODD instead and then install USB 3.0 driver under OS, or place order of WES7 integrating Intel xHCI driver from Advantech

Advantech OS P/N	RVCD/DVD P/N	Description	replace RDVD P/N w/USB3.0 driver	Description
968QW7PROE	206QW7PRO C	RDVD for Win7 Pro 32bit TradChn		
	206QW7PROE	RDVD for Win7 Pro 32bit ENG		
	206QW7P64E	RDVD for Win7 Pro 64bit ENG		NA
	206QW7P64J	RDVD for Win7 Pro SP1 64bit JPN V1.0		
968QW7PS1X	206QW7PS6C	RDVD for Win7 Pro SP1 64bit TradChn	206QW7P6CU	RDVD for Win7 Pro SP1 x64 TradChn w/USB driver
	206QW7PS6E	RDVD for Win7 Pro SP1 64bit Eng	206QW7P6EU	RDVD for Win7 Pro SP1 x64 Eng w/USB driver
	206QW7PS1C	RDVD for Win7 Pro SP1 32bit TradChn	206QW7P1CU	RDVD for Win7 Pro SP1 x32 TradChn w/USB driver
	206QW7PS1E	RDVD for Win7 Pro SP1 32bit Eng	206QW7P1EU	RDVD for Win7 Pro SP1 x32 Eng w/USB driver
	206QW7PS1J	Recovery CD for Win7 Pro SP1 JPN V1.0		
	206QW7PS6J	RDVD for Win7 Pro SP1 64bit Japanese		
968QW7ULTE	206QW7U64E	RDVD for Win7 ULT 64bit ENG		
	206QW7ULTE	RDVD for Win7 ULT 32bit ENG		NA
	206QW7UMU6	RDVD for Win7 ULT x64 Multi-language Pack		
968QW7US1X	206QW7UMUI	RDVD Win7 ULT MUI V1.0		
	206QW7US1E	RDVD for Win7 ULT SP1 32bit ENG	206QW7U1EU	RDVD for Win7 Ult SP1 x32 Eng w/USB driver
	206QW7US6E	RDVD for Win7 ULT SP1 x64 ENG	206QW7U6EU	RDVD for Win7 Ult SP1 x64 Eng w/USB driver
	206QW7USM1	RDVD for Win7 ULT SP1 x32 Multi-language Pack		
	206QW7USM6	RDVD for Win7 ULT SP1 x64 Multi-language Pack		

# PICMG 1.3 Slot SBC Life Cycle

