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SMC IA DP/UP MBD Update

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Product Management, Technical Service
06/04/208

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SMC IA DP Platform Roadmap

Supermicro X8 Generation	Supermicro X9 Generation	Supermicro X10 Generation	Supermicro X11 Generation
Intel® Microarchitecture Codename Nehalem	Intel® Microarchitecture Codename Sandy Bridge	Intel® Microarchitecture Codename Haswell	Intel® Microarchitecture Codename Skylake
Nehalem 45nm New Micro-architecture	Sandy Bridge 32nm New Micro-architecture	Haswell 22nm New Micro-architecture	Skylake 14nm New Micro-architecture
Westmere 32nm New Process Technology	Ivy Bridge 22nm New Process Technology	Broadwell 14nm New Process Technology	Cascade Lake 14nm
		Grantley	Purley

Server & Workstation CPUs

14nm Process Technology

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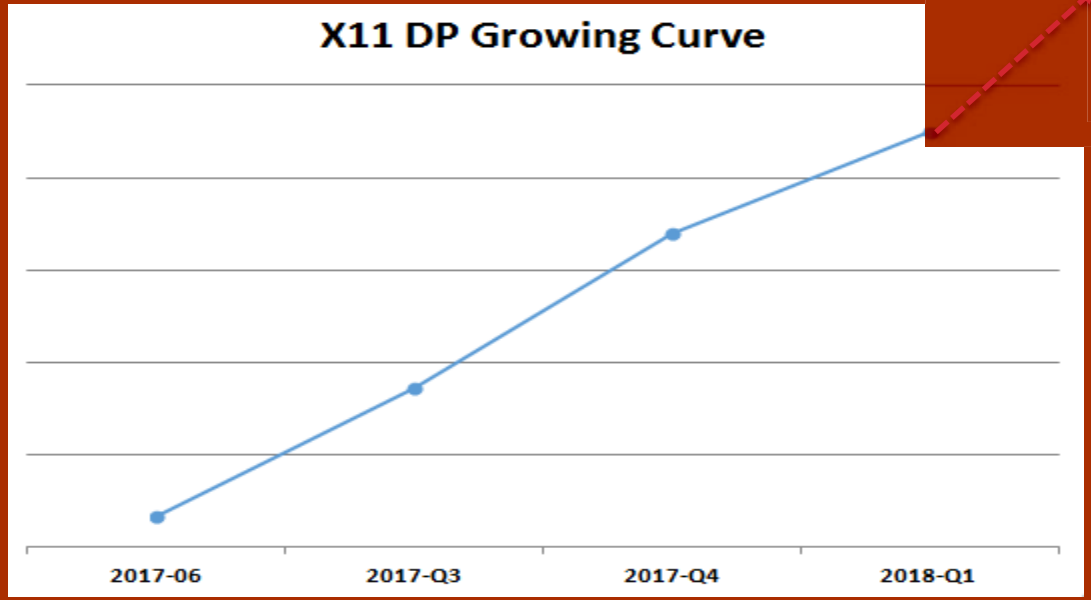
X11 DP Motherboard Growing Curve



- X11 DP motherboards sales are increasing at a rapid pace.
- Supermicro is fully ready to support Intel's next generation CPU -- Cascade Lake with Apache Pass.

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Advanced Features in X11 Platform

And More!

Flexible 10G/25G/50G/100G Networking solution

3-UPI design

Intel QuickAssist Technology for encryption and compression offload

TPM 2.0 + TXT for cloud security

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Cascade Lake

Cascade Lake is the next generation of Intel® CPU on the Purley platform and will deliver new capabilities such as Apache Pass support, HW security mitigations, and more performance/frequency.

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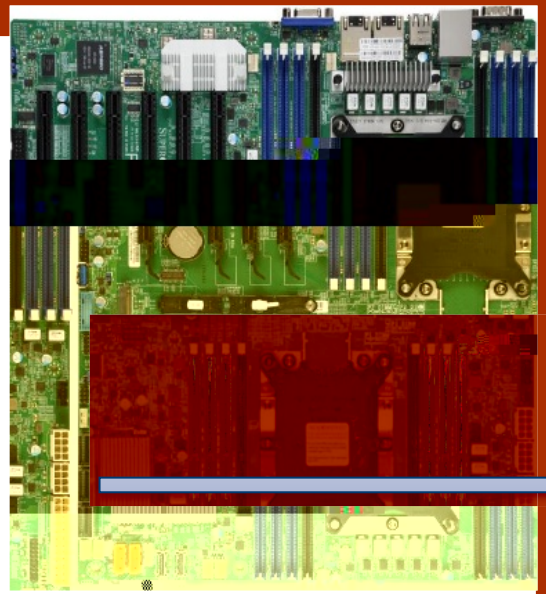

What's New?

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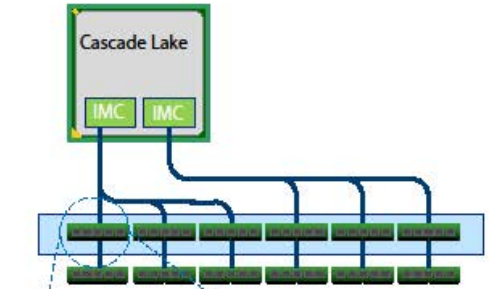
Apache Pass

Apache Pass Product Overview

(3D XPoint™ based Memory Module for the Data Center)



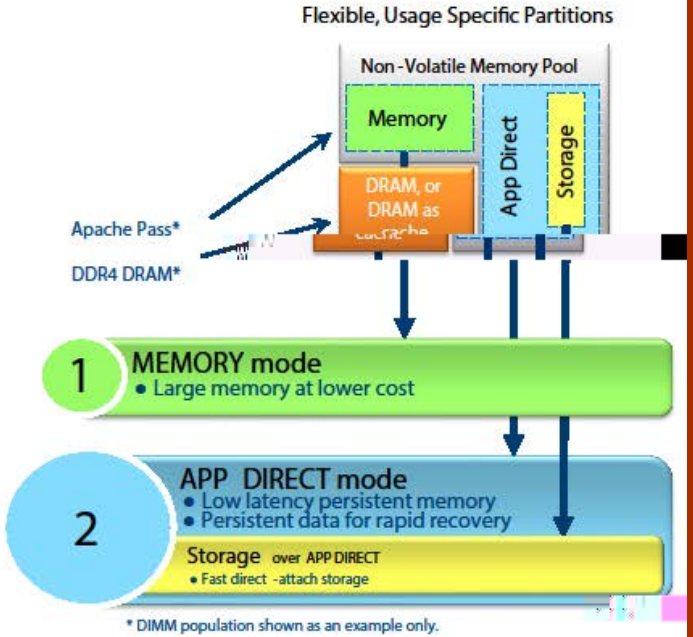
Apache Pass

- DDR4 electrical & physical
- Close to DRAM latency
- Cache line size access

DIMM Capacity
- 128, 256, 512GB

Speed
- 2666 MT/sec

Platform Capacity
- 6TB (3TB per CPU)



* DIMM population shown as an example only.

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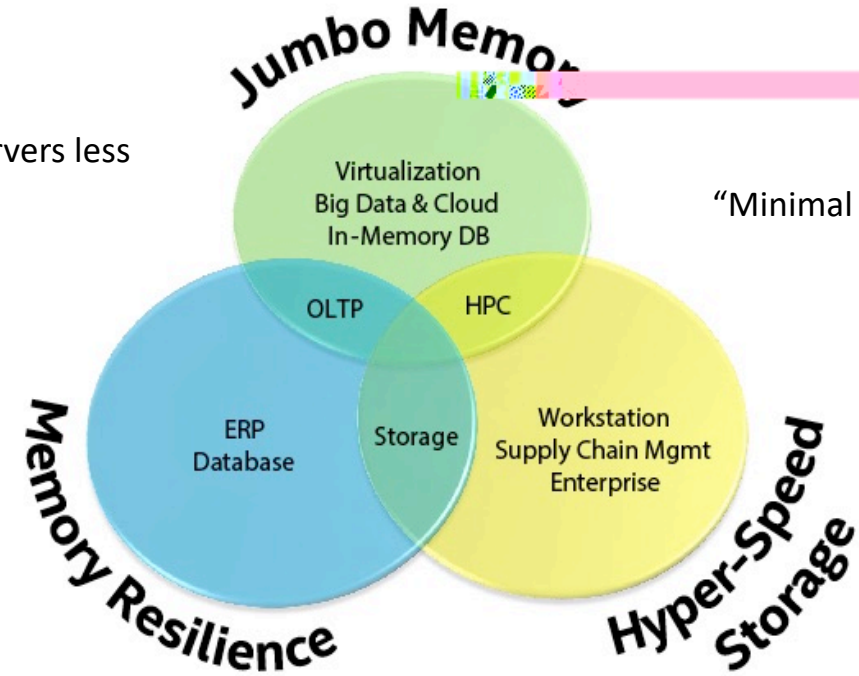
Growing need for new class of memory

"Make large memory servers less expensive"



"Minimal latency for huge memory"

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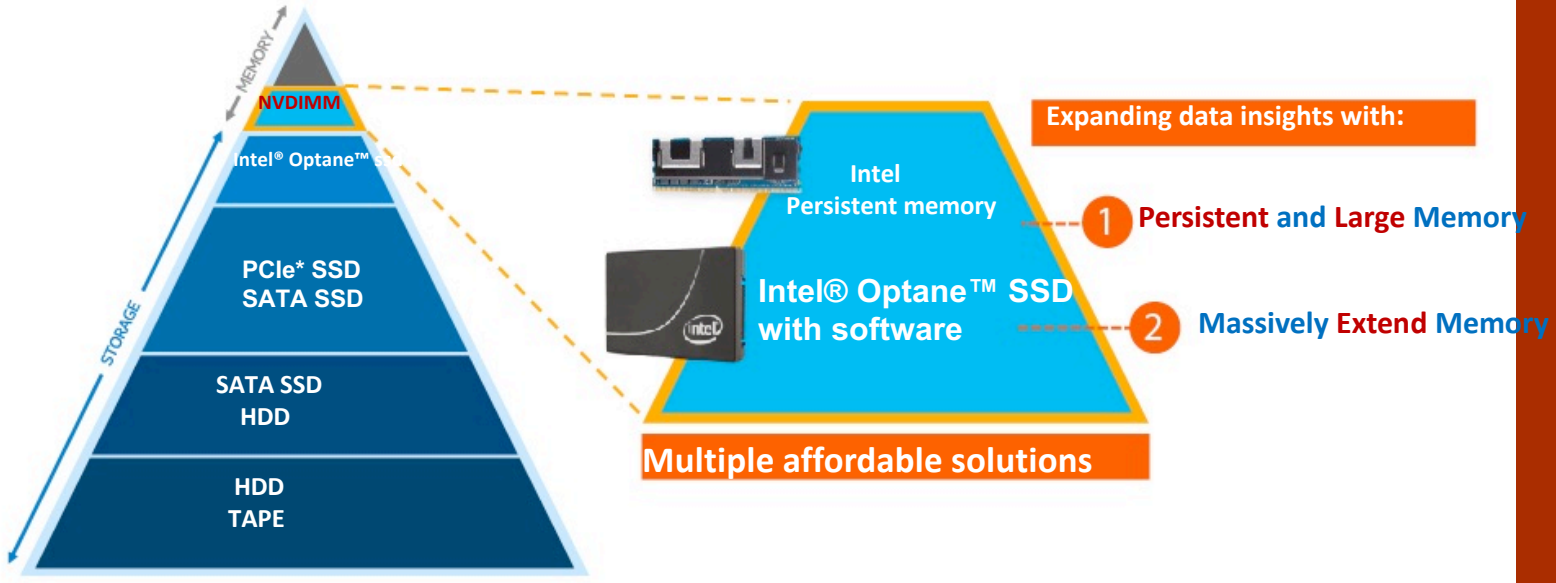
Apache Pass



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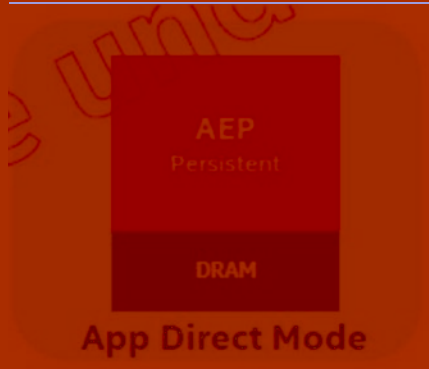
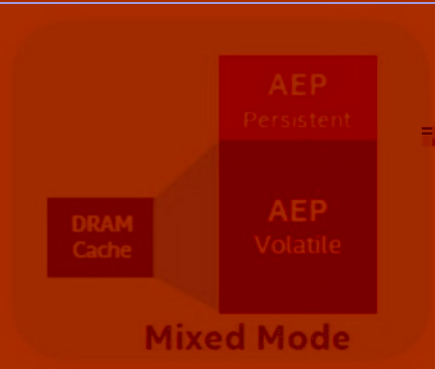
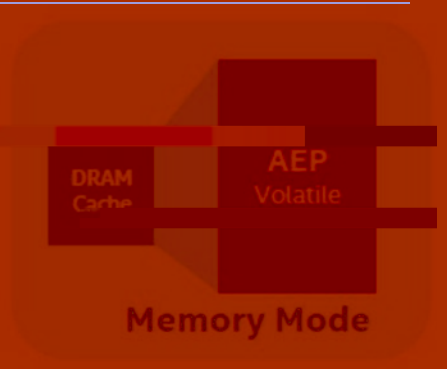
Apache Pass







Faster access to data and more predictable performance

Replace high-cost, high-maintenance NVDIMMs

Providing lower and consistent latency with more capacity per dollar

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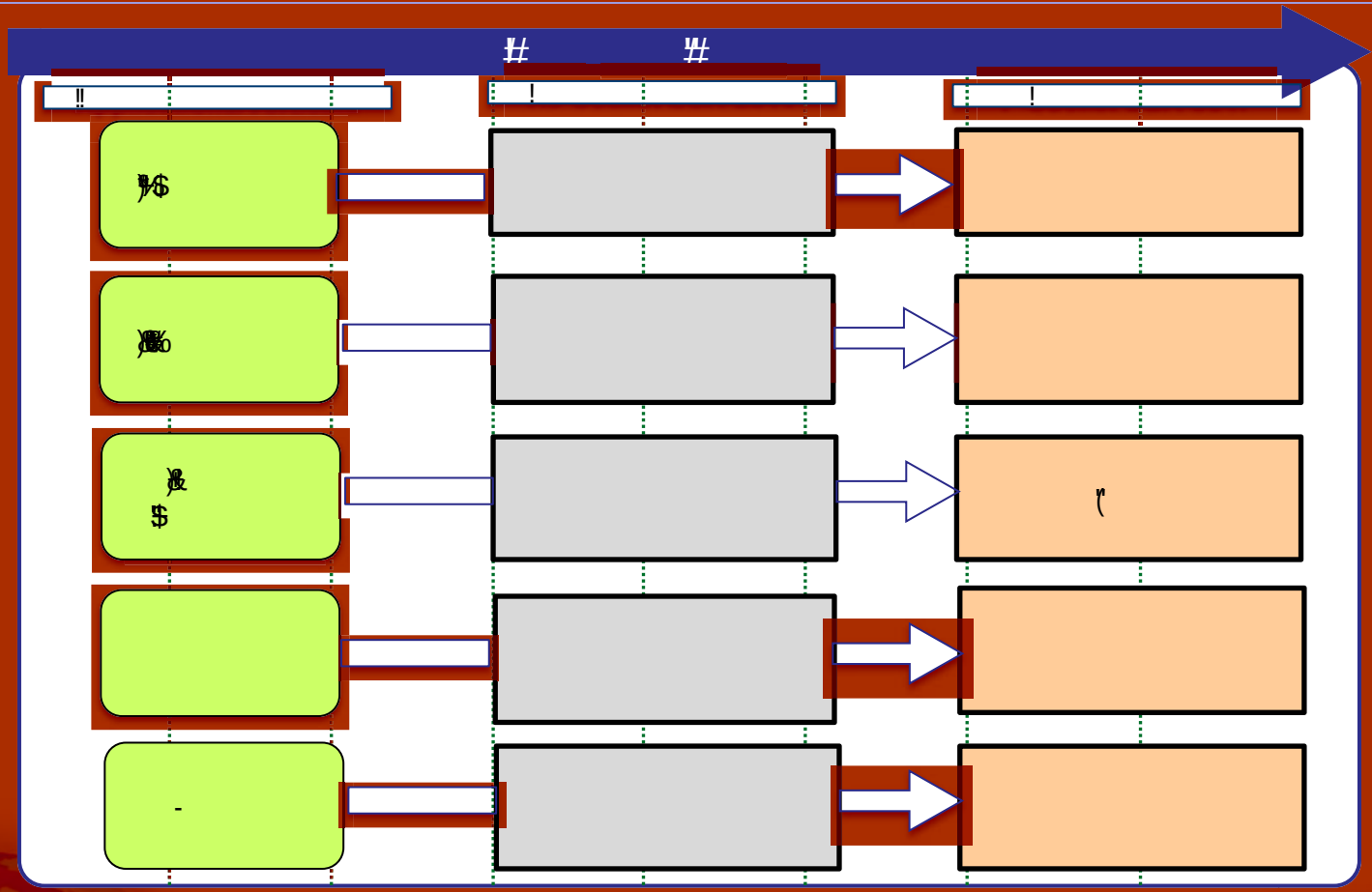
DP MB (X10-X11) Transition Chart



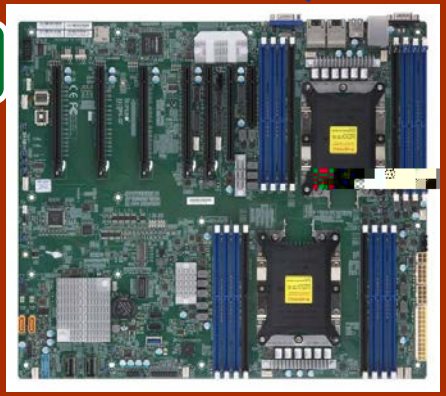
Workstation

The Most Complete Workstation Portfolio

Best–in-class technology designed for ultimate performance in tower form factor

X11DPG-QT

SMC Proprietary



E-ATX

GLOBAL SKU

Flagship Workstation

- 16 DIMMs
- 3 UPI
- 4 double width GPU support
- M.2
- Dual 10 GbE LAN

X11DAi-N

E-ATX

GLOBAL SKU

Workstation

- 16 DIMM slots
- 3 double width GPU support
- M.2 & 2x NVMe ports
- 7.1 Audio
- Thunderbolt support

X11DAC

Storage Workstation

- 16 DIMM slots
- 3 double width GPU support
- Broadcom 3008 SW RAID
- 7.1 Audio
- PS/2 Combo KB/MS

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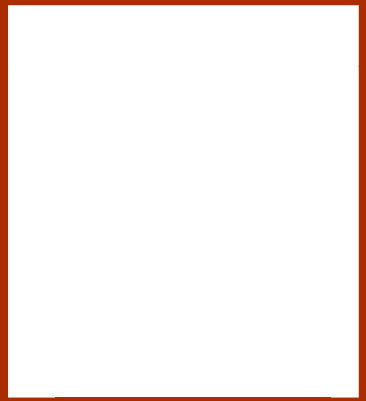
Storage Optimized

Provides great expandability for storage applications and delivers powerful encryption/compression offload

X11DPH-i/T(q)

E-ATX



Storage Optimized

- 16 DIMM slots
- 7 PCIe slots
- 2 M.2
- 3 UPI
- QuickAssist Technology

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WIO

I/O Flexibility and Density

The most flexible I/O solutions on the market allowing multiple full-height AOC in dense 1U/2U chassis

X11DDW-L/NT

SMC Proprietary

Expandability

- 12 DIMM slots
- 3 AOCs + 1 AOM in 1U
- 6 AOCs + 1 AOM in 2U
- Dual 1GbE or 10 GbE LAN
- 4x NVMe ports (NT)
- SAS3 Mezzanine Card support

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Max I/O Expansion

!

!

!

Optimized Chassis

MB	1U	2U	3U/Mid-Tower	4U/Tower
X11DPi-N/NT		SC825TQC-1K03LPB SC213AC-R1K23LPB		SC745BAC-R1K28B2
X11DPL-i	SC813MF2TQC-R608CB SC813MF2TQC-505CB SC113MFAC2-R608CB SC113MFAC2-605CB SC514-R407C	SC825TQC-R740LPB SC825MBTQC-R802LPB	SC825MBTQC-R802LPB SC732i-865B	SC842XTQ-R606B SC842TQC-865B
X11DAi-N			SC732D4-1200B SC732D4-903B	SC743AC-1200B-SQ
X11DAC			SC732D3-1200B SC732D4-903B	SC743AC-1200B-SQ
X11DPG-QT				747BTS-R2K20BP
X11DPH-i/T(q)		SC826BE1C4-R1K23LPB SC216BE1C4-R1K23LPB SC829HE1C4-R1K62LPB	SC836BE1C-R1K23B	SC846BE1C-R1K23B SC847BE1C4-R1K23LPB
X11DDW-L/NT	SC815TQC-R706WB2 SC116AC2-R706WB2 SC113AC2-R706WB2	SC825TQC-R1K03WB SC826BAC4-R1K23WB		
X11DPX-T		SC213XAC-R1K05LP	SC835XTQ-R982B	SC846XA-R1K23B SC846XE1C-R1K23B SC846XE2C-R1K23B

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Summary

- X11 DP motherboards are fully ready.
- Support Cascade Lake CPU with no hardware change.
- 12 SKUs of X11 DP motherboard that can be sold individually.
- Early engagement is key.
- Let's work together and achieve an increased sales of 30-50% within the next quarter.

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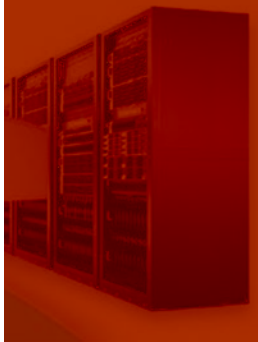
UP Server Motherboard Deep Dive

~Maximize the Efficiency & Effectiveness



Morris Jhang

2018.06.04

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Why UP Server Product

Cost-optimized	application-driven, specific feature sets built-in
Space Saving	smaller size, compact form factor
Simplified Architecture	zero-overhead cross processors
Unique Features	SGX, VHD/QSV & Intel Optane Memory (CAS)
Max. Frequency	single core/thread performance orientated
Wide-range CPU	cost, TDP & computing power

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Why Supermicro UP Server Product

#1 Quality
- Engineering-centric, robustness of in-house validation

#2 Broad Offerings
- Optimized constraint-driven solutions provider

#3 Building Blocks
- Chassis, AOC, Cable, I/O Shield, BPN, FAN, Air shroud…

#4 Flexibility
- Custom BIOS, IPMI and OEM design support

#5 Mgt. SW
- BIOS, IPMI, SPM, SUM, SuperDoctor5

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Product Segmentations

Performance

Entry

Broadwell-EP

- Xeon E5-26xx v4 → New → Skylake-SP
- Xeon E5-16xx v4 → New → Skylake-W

Skylake-SP

- Xeon Platinum 81xx
- Xeon Gold 61xx
- Xeon Gold 51xx
- Xeon Silver 41xx
- Xeon Bronze 31xx

4-28 Cores
85W-205W
$213 ~ $10,015*

- X11SP_ Series

Skylake-W

- Xeon W-21xx

4-18 Cores
120W-140W
$202 ~ $2553*

- X11SRM_ Series

Skylake/Kabylake

- Xeon E3-12xx v6
- Xeon E3-15xx v5

CoffeeLake

New → Xeon E-21xx

2-8 Cores
25W-95W
$52 ~ $612**

- X11SS_ Series
- X11SC_ Series

*Price information is available on Intel ARK https://ark.intel.com/
** 6C/8C CPU is not available now

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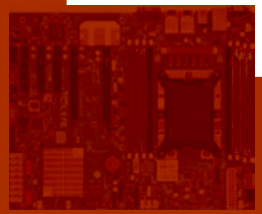
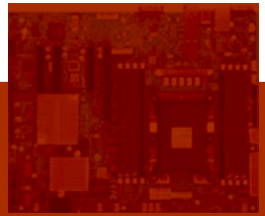
Hot-selling UP Boards

Performance:

Skylake-SP/-W, 12 SKUs in ATX, mATX, WIO, GPU

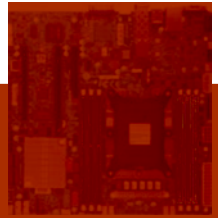


X11SPL-F

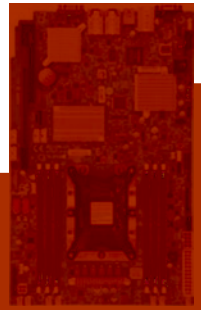


X11SPi-TF

X11SPH-nCTF/
X11SPH-nCTPF



X11SPM-F/
X11SPM-TF/
X11SPM-TPF



X11SPW-TF
X11SPW-CTF

X11SPG-TF

X11SRM-VF/
X11SRM-F

Entry:

Skylake/Kabylake, 17 SKUs in ATX, mATX, WIO

X11SSA-F/
X11SSi-LN4F

X11SSH-F/
X11SSH-LN4F

X11SSL-CF/
X11SSL-nF

X11SSL-F/
X11SSM-F

X11SSH-TF/
X11SSH-CTF

X11SSH-G(T)F
-1585(L)

X11SSW-F

X11SSW-4TF/
X11SSW-TF

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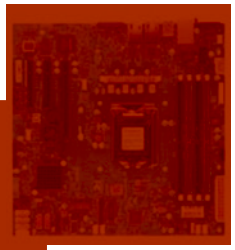
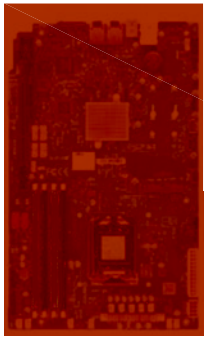
What's new in 2018

Latest Entry:

Coffee Lake, 8 SKUs in mATX, mini-ITX, WIO

Launch	Oct~Nov'18
Sample Availability	June'18





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Roadmap

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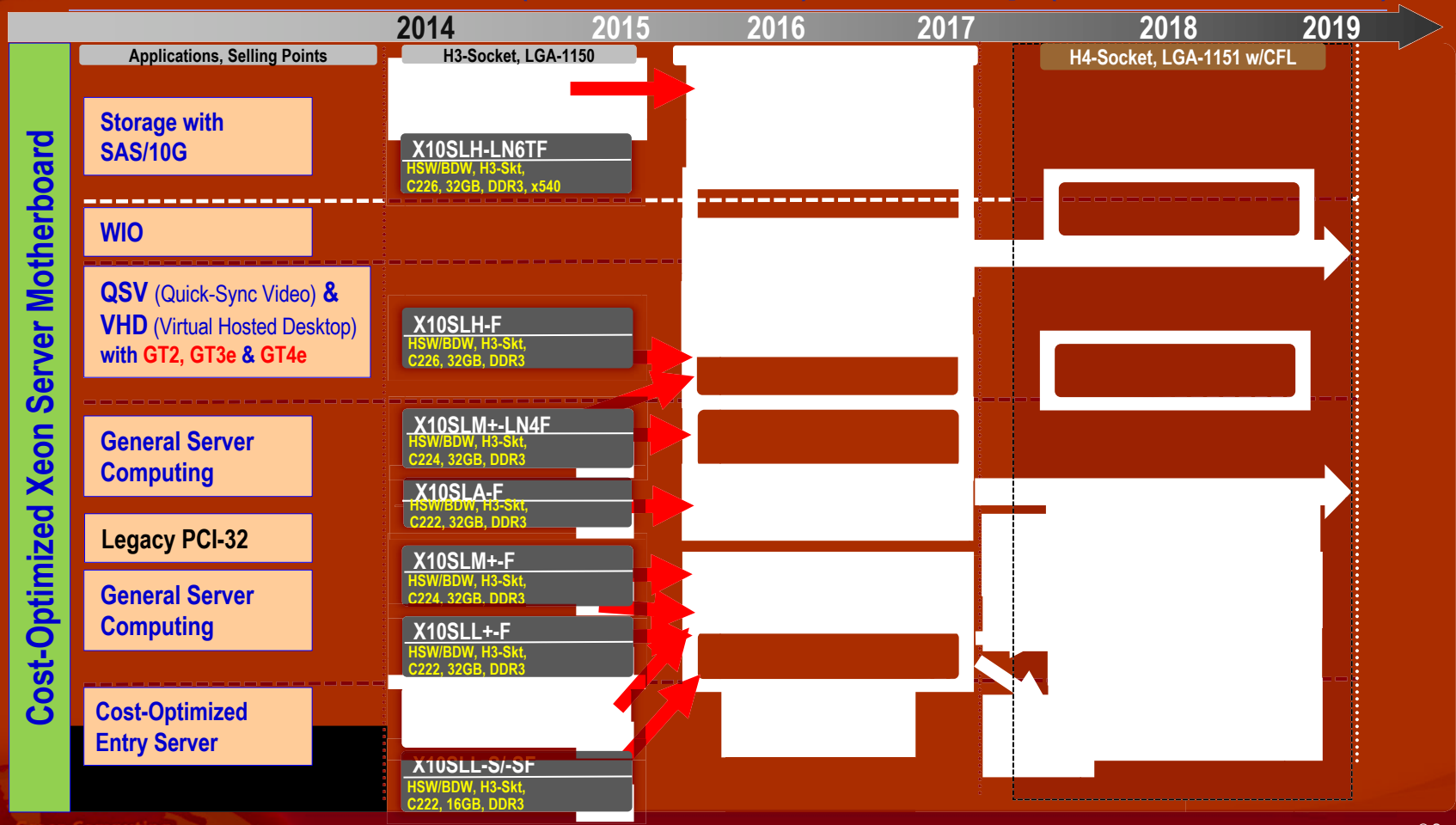
UP E3 SVR MB (X10-X11-X12) Roadmap (Transition Chart)



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Platform Overview

Spec \ Platform	Greenlow with Skylake/Kabylake CPU	Mehlow with Coffeelake CPU
CPU TDP (with IVR)	25W~80W	25W ~95W
Graphics	GT2 & GT0	GT2 & GT0
Socket	Socket H4 (LGA 1151)	Socket H4 (LGA 1151)
Scalability	N/A –1 Socket Only	N/A –1 Socket Only
Cores	2C, 4C with Intel® HT Technology	2C, 4C, 6C, 8C with Intel® HT Technology
Memory	2 channels DDR4 UDIMM ECC@1.2V	2 channels DDR4 UDIMM ECC@1.2V
	up to 2400MHz	Up to 2666MHz
PCIe*	PCIe* 3.0 (2.5, 5.0, 8.0 GT/s)	PCIe* 3.0 (2.5, 5.0, 8.0 GT/s)
	16 lanes per CPU	16 lanes per CPU
PCH	C232/C236 - Up to 10 x USB3.1 Gen1 - Up to 8 x SATA3 ports - Up to 20 Gen3	**C242/C246** - Up to **6 x USB3.1 Gen2** - Up to 8 x SATA3 ports - Up to **24** Gen3
Intel Optane Memory	N/A	Support (CAS)

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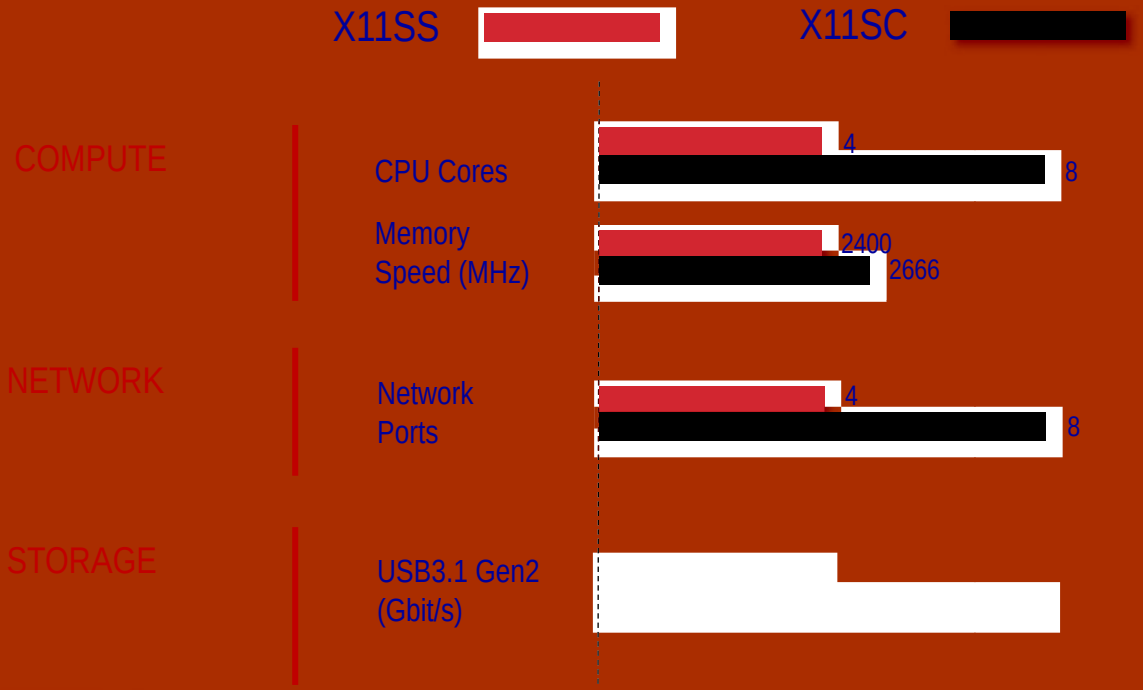
Performance Improvement



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Major Selling Points and Applications

Mainstream

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X11SCL-F

mATX: 9.6” x 9.6”

Key Features

- 3 PCIe3.0 slots: x8 (in x16), 2 x4 (in x8)
- M.2: PCIe3.0 x4, 2280/22110 FF
- Low-Cost 6C, 95W

Value Proposition

- Maximum I/O expansion flexibility
- Cost-optimized standard server board

Target Customers/Verticals

- Surveillance storage
- General purpose computing
- Pedestal server for SMB, SOHO

CSE-512

CSE-813M

CSE-113M

CSE-731D

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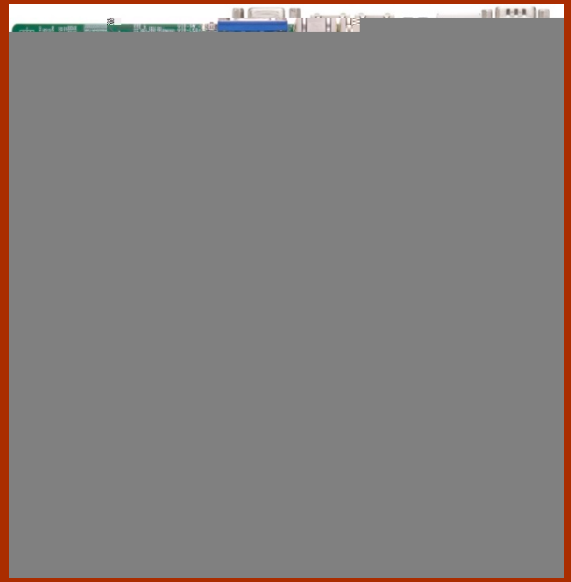
X11SCH-LN4F/-F



mATX: 9.6” x 9.6”

Key Features

- 2 PCIe3.0 slots: 1 x8(1 in x16), 1 x8
- Dual M.2: PCIe3.0 x4, 2280/22110 FF
- GT2 Power for VHD/QSV
- 8C, 95W

Value Proposition

- 4x GbE LANs
- Full-set storage interfaces
- Unparalleled computing power in entry-level

Target Customers/Verticals

- Storage
- Networking applications
- Media-transcoding

CSE-512

CSE-813M

CSE-113M

CSE-731D

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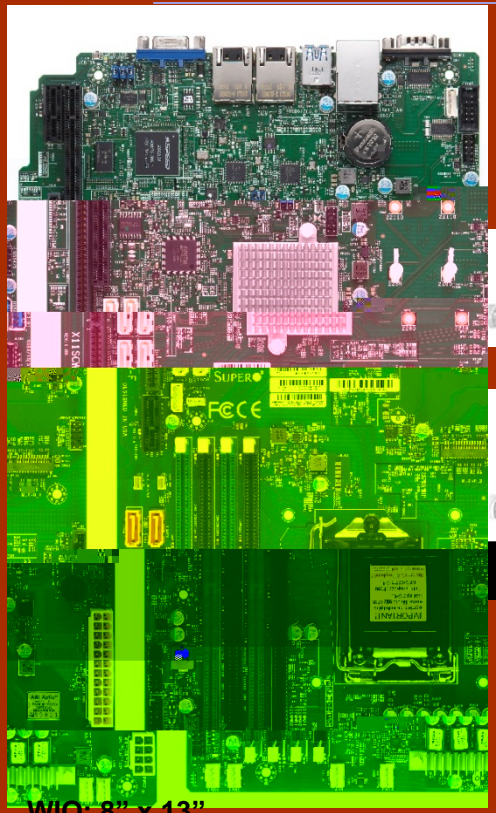
X11SCW-F



WIO: 8” x 13”

CSE-514

CSE-515

CSE-113TQ

CSE-815TQ

Key Features

- 3 AOC in 1U
- Dual M.2: PCIe3.0 x4/SATA*, 2260/2280/22110 FF
- USB3.1 Gen2: 10Gbps
- 8C, 95W

Value Proposition

- Maximized I/O expansions in 1U
- Unparalleled computing power in entry-level

Target Customers/Verticals

- Networking security
- Telecommunications
- Video/Audio Conference System

* 1 at PCIe 3.0 x4 & SATA; 1 at PCIe3.0 x4

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Major Selling Points and Applications

New Product-lines

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X11SCL-IF

Mini-iTX: 6.7” x 6.7”

Key Features

- Compact in Size
- Hybrid M.2: PCIe3.0 x4/SATA, 2280 FF
- Lowest-Cost 6C, 95W

Value Proposition

- Space-saving
- Most cost-optimized standard server board

Target Customers/Verticals

- Micro server for SMB, SOHO
- General purpose computing

CSE-504

CSE-505

CSE-721TQ

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Feature Summary

Model	FF	Compute			Storage			Network	Expansion	Power Solution
		TDP	PCH	Memory	SATA 6Gb/s	M.2	USB 3.1	LAN (GbE)	PCI-E 3.0	CPU core
X11SCW-F	WIO	95W	C246	64GB, 4 slots						

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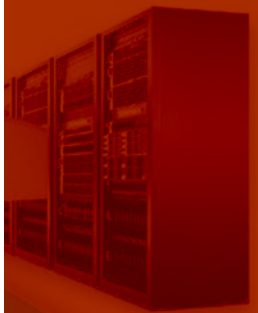

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