



Supermicro uCPE Solution Brief

The SuperServer 5019D-FN8TP, E300-9D-8CN8TP, and E300-9D are verified Intel® Select Solutions for uCPE.

- **Overview**

Universal customer premises equipment (uCPE) is an emerging category of network functions virtualization (NFV)-based edge computing and service provisioning systems. This new generation of systems provides network platform suppliers, systems integrators and software vendors the ability to quickly deliver managed services using software-driven and virtual network functions (VNFs). This in turn enables service agility for customers from the fields of software-defined-startup, telecom operators, service providers or enterprise infrastructure.

Now, with Supermicro's verified Intel® Select Solutions for uCPE, service providers should be able to quickly and efficiently deploy various NFV applications more securely and easily than ever before. This solution can eliminate the need for proprietary purpose-built servers that are hard to manage and maintain.

With Supermicro's solutions, which feature tested and optimized configurations, end users will spend less time, effort, and expense evaluating hardware and software options. Supermicro's verified Intel® Select Solutions for uCPE will help end users simplify design choices by bundling hardware and software pieces together while making high performance easier than before.

- **Ease Adoption of SD-WAN**

Current generation network equipment is based on purpose-built proprietary hardware. These appliances are single function boxes that are complex to maintain as well as slow and expensive to upgrade. They inhibit network platform suppliers from dynamically offering new network services and functions.

Adapting Supermicro uCPE can help network service providers take advantage of technology innovation in software defined networking (SDN) and NFV, which are complementary but increasingly co-dependent for the benefits of software-defined networking to be fully realized. A network service provider could run multiple VNFs—such as a router, VPN, and a firewall—on a general-purpose server based on end-user demand. They have the flexibility to deploy new network functions and service without deploying new hardware servers, attributing to significant CAPEX & OPEX reduction as well as speed and ease in deployment of new services.

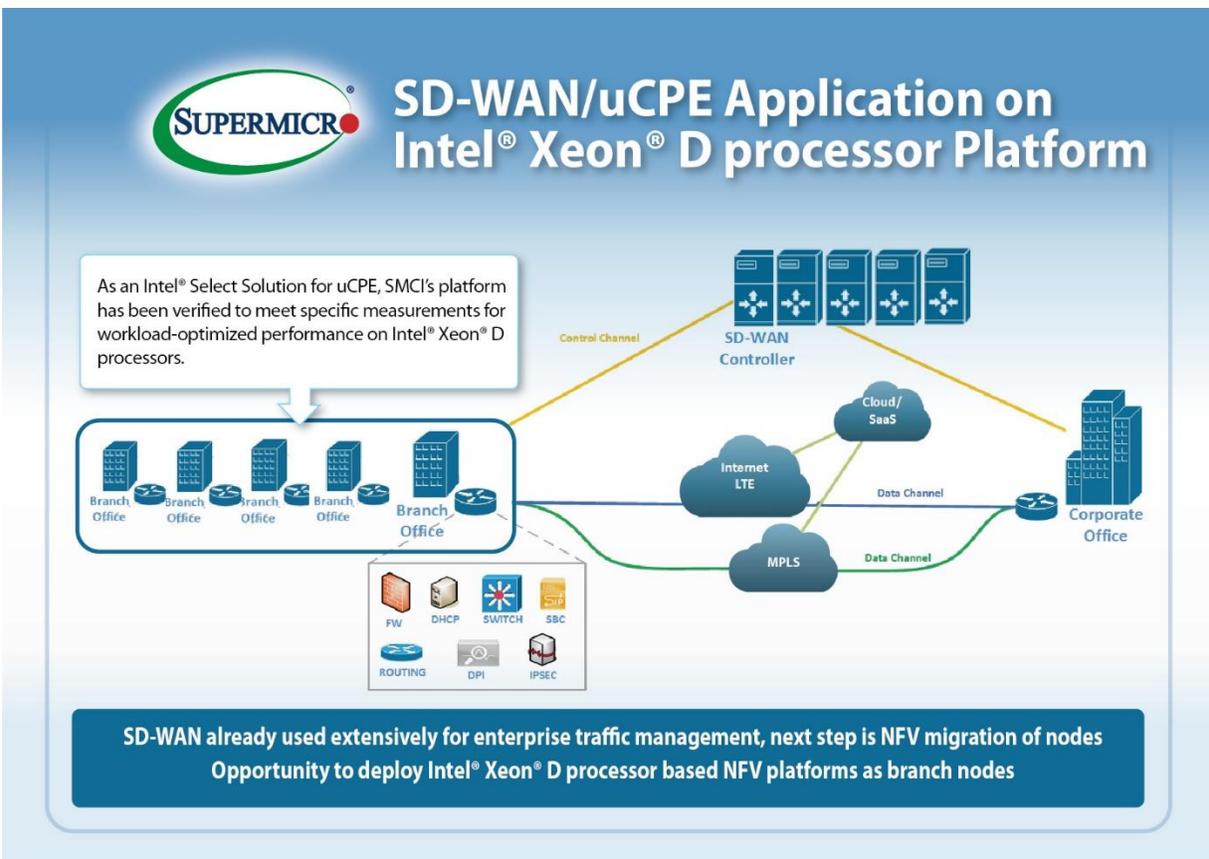
Supermicro's verified Intel Select Solutions for uCPE come tested to allow easy integration with a variety of VNFs, including SD-WAN (software defined-WAN). SD-WAN has its roots in SDN, the

underlying principle of which is to abstract the network hardware and transport characteristics from the applications that use the network. With this innovation, SD-WAN is able to deliver increased network agility and cost reduction compared to traditional WANs.

Rather than manually configuring and managing all WAN devices, including those at remote locations, SD-WAN overlay architecture enables you to centrally manage WAN infrastructure through a single interface. A hybrid approach to your WAN infrastructure in both MPLS (Multi-Protocol Label Switching) & SD-WAN will also increase the variety and complexity of performance issues. The market still has major challenges to address such as:

1. Is it better to adopt a fully managed SD-WAN or should control be preserved in-house?
2. Is there even a middle-ground that alleviates much of the day-to-day burdens without risking availability or data integrity?
3. Will it become a bottleneck when managing networks across remote locations to Headquarters?

Supermicro's verified Intel Select Solutions for uCPE address these challenges of adopting SD-WAN by providing an integrated hardware and software platform with verified performance to ease decision making and speed deployments.



- **Supermicro's uCPE Solutions**

	SuperServer 5019D-FN8TP	SuperServer E300-9D	SuperServer E300-9D-8CN8TP
URL	https://www.supermicro.com/products/system/1u/5019/SYS-5019D-FN8TP.cfm	https://www.supermicro.com/products/system/Mini-ITX/SYS-E300-9D.cfm	https://www.supermicro.com/products/system/Mini-ITX/SYS-E300-9D-8CN8TP.cfm
CPU	Intel® Xeon® processor D-2146NT, 8-Core, 16 Threads with built-in Intel® QuickAssist Technology for Crypto/Compression application	Intel® Xeon® processor D-2123IT, 4-Core, 8 Threads	Intel® Xeon® processor D-2146NT, 8-Core, 16 Threads with built-in Intel® QuickAssist Technology for Crypto/Compression application
Memory	Up to 512GB ECC LRDIMM or up to 256GB ECC/non-ECC RDIMM DDR4 2666MHz in 4 slots	Up to 512GB ECC LRDIMM or up to 256GB ECC/non-ECC RDIMM DDR4 2666MHz in 4 slots	Up to 512GB ECC LRDIMM or up to 256GB ECC/non-ECC RDIMM DDR4 2666MHz in 4 slots
Storage	Intel® SSD DC S3500 Series in M.2 & S3520 series in 2.5" for 256 GB or higher	Intel® SSD DC S3500 Series in M.2 & S3520 series in 2.5" for 256 GB or higher	Intel® SSD DC S3500 Series in M.2 & S3520 series in 2.5" for 256 GB or higher
PCIe Expansion	1x M.2 M key for SSD in 2280 1x M.2 B Key for wireless communication card in 2242 1x Mini-PCI-E with mSATA Support 1 PCIe 3.0 x8 slot	1 onboard OcuLink port (or 1 PCI-E 3.0 x4 NVMe), 1 PCI-E 3.0 x8 (LP) open slot	1x M.2 M key for SSD in 2280 1x M.2 B Key for wireless communication card in 2242 1x Mini-PCI-E with mSATA Support 1 PCIe 3.0 x8 slot
Network Interface	Copper: 4x 1GbE and 2x 10G Based-T ports Fiber: 2x 10G SFP+ ports	Copper: 2x 10G Based-T ports	Copper: 4x 1GbE and 2x 10G Based-T ports Fiber: 2x 10G SFP+ ports
Other I/O Interface	1x dedicated LAN for IPMI 2.0 1x VGA & 2x USB 3.0	1x dedicated LAN IPMI 2.0 1x VGA & 2x USB 3.0	1x dedicated LAN for IPMI 2.0 1x VGA & 2x USB 3.0
Cooling Fan	3x 40x28mm Delta 4-PIN PWM fans	3x 40x28mm 4-PIN PWM Fan	3x 40x28mm 4-PIN PWM Fan
PSU	200 W Low-noise AC-DC power supply	120 W Lockable DC Power Adapter	150 W Lockable DC Power Adapter

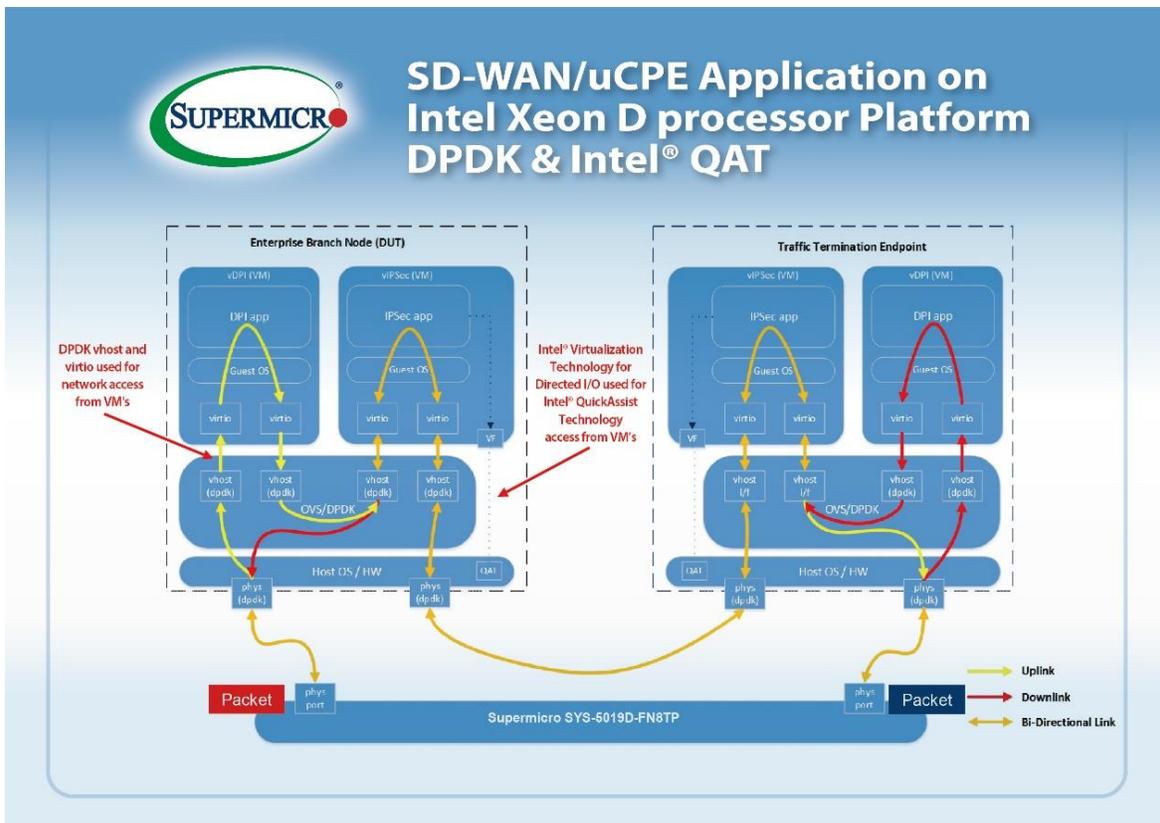
Intel® Select Solution for uCPE HW Configuration

Ingredient	Requirement
Platform	Intel® Xeon® D Processor Family
CPU	Intel® Xeon® D – 2123IT SKU, 4C 2.2 GHz 60W or higher SKU
Memory	16 GB DDR4 2133 MHz, 4 * 4 GB Total of 16 GB Minimum all four memory channels populated (1 DPC) to achieve 16 GB (i.e., 4 * 4 GB RDIMM)
NIC	2 x 10 GbE Integrated Ethernet ports
Intel® QAT	Integrated Intel® QuickAssist Technology or Intel® QuickAssist 8970 PCIe* add-in card or equivalent third party Intel® C62x Series Chipset QAT Enabled PCIe* add-in card
Storage	Intel® Solid State Drive Data Center S3110 256 GB 2.5" (SATA or M.2)



- ## Conclusion

Supermicro offers a variety of market-ready uCPE solutions with full validation in each BIOS, firmware, operating system, and VM level certification. For example, Supermicro servers using Intel Xeon D-2100 processors and Intel Atom® C3000 processors are already on the list of VMware HCL compatibility with latest ESXi 6.7, which means customers can easily apply virtual machines on the top of Supermicro uCPE. With the SuperServer 5019D-FN8TP, E300-9D-8CN8TP, and E300-9D verified as Intel® Select Solutions for uCPE, Supermicro now offers its customers a new, additional degree of confidence. Those looking to easily adopt SD-WAN can know that these systems offer not just easy deployment but also verified, workload-optimized performance.



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