

# IEI Ice Lake-SP Solution

## Intel® Ice Lake-SP Platform Overview

### Increased Performance

Up to 1.40X General VS. Cascade Lake  
Up to 1.42X more Cores Per Processor - VS. Cascade Lake

### Enhanced I/O

64 Lanes PCIe Gen4 per CPU  
8 channels of DDR4-3200 R-DIMM / LR-DIMM  
Intel resource director technology

### Intel® Deep Learning Boost

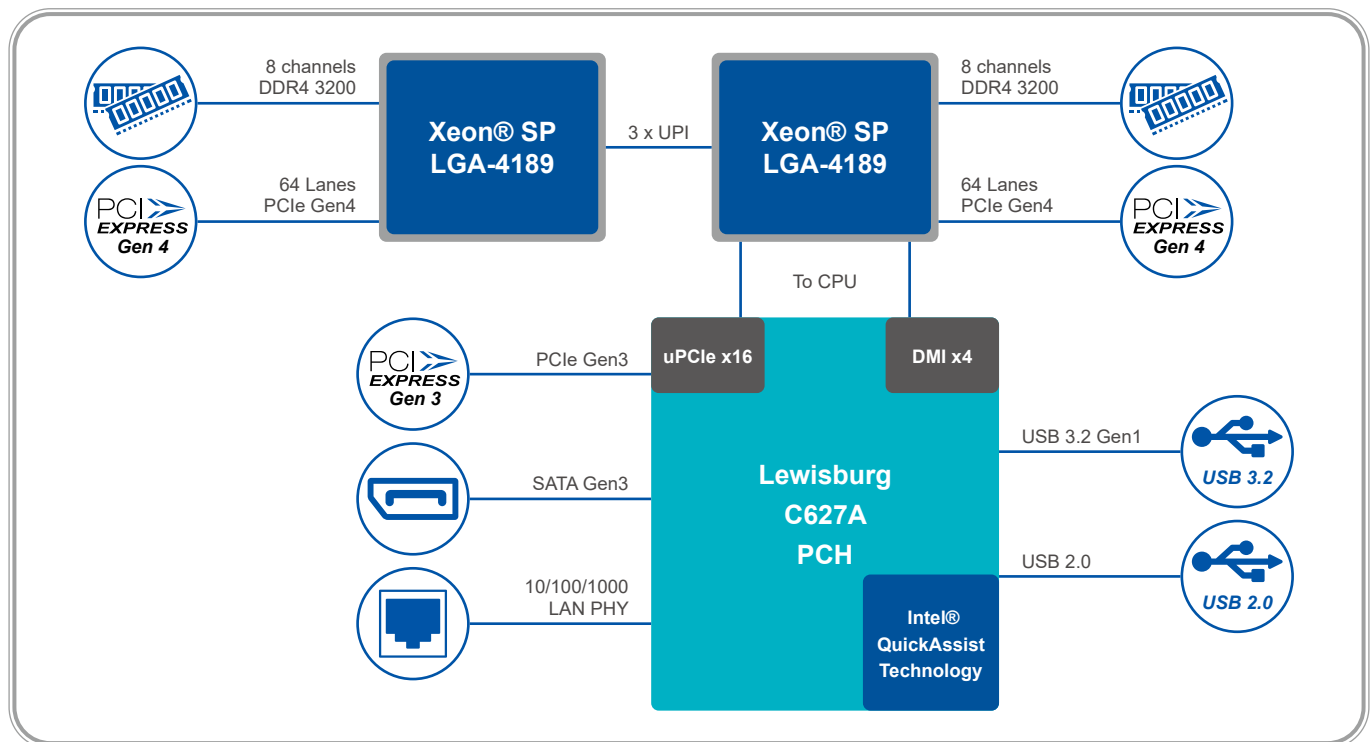
Built-in AI acceleration

### New Intel® Optane™ Persistent Memory 200 Series

Up to 512GB PMem, Up to 6TB/SOCKET  
Total system memory (DDR + Pmem)

### New Hardware-Enhanced Security

Enhanced crypto processing  
Intel software guard extensions  
Intel total memory encryption

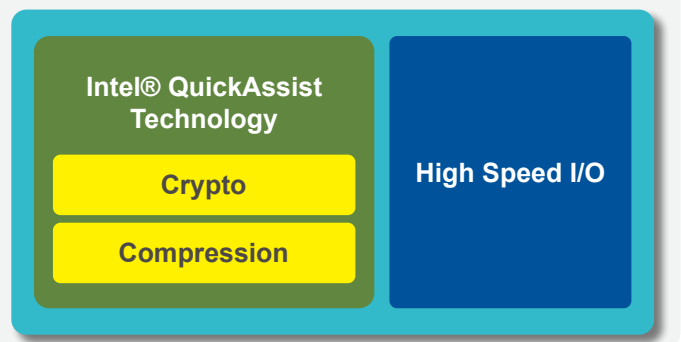


## Intel® QuickAssist Technology

Intel® QuickAssist Technology integrates hardware acceleration of compute intensive workloads  
Such as Bulk Cryptography, Public Key Exchange & Compression on Intel® Architecture Platforms

- Intel's 3rd Generation Technology
- Sub Gb/s to 100 Gb/s Rates
- Networking, Storage, Big Data, Cloud, Datacenter, and HPC Applications Receive High Performance Execution of:
  - » Cryptographic Ciphers
  - » Authentication
  - » Public Key Exchange & Key Protection
  - » Compression/Decompression
- Enables Standard Server & Cloud Platforms to Offer Ubiquitous Security and Compression/Decompression
- Provides a Converged Platform Architecture for Cloud, Networking, Storage & Big Data

### Integrated Accelerator & PCH



# » Intel® Ice Lake & Cascade Lake Comparison

Cascade Lake-SP

Ice Lake-SP

Family Branding	Cascade Lake-SP	Ice Lake-SP
Process Node	14nm++	10nm+
Platform Name	Intel Purley	Intel Whitley
Socket	LGA 3647	LGA 4189
Max Core Count	Up To 28	Up To 38
Max Thread Count	Up To 56	Up To 76
Memory Support	6-Channel DDR4-2933 R-DIMM / LR-DIMM	8-Channel DDR4-3200 R-DIMM / LR-DIMM
PCIe Gen Support	PCIe 3.0 (48 Lanes)	PCIe 4.0 (64 Lanes)
TDP Range	Up to 205W	Up To 270W
3D Xpoint Optane DIMM	Apache Pass	Barlow Pass

## » Features of IEI Product with Intel® Ice Lake-SP

### » CPU 64 Lanes PCIe Gen4

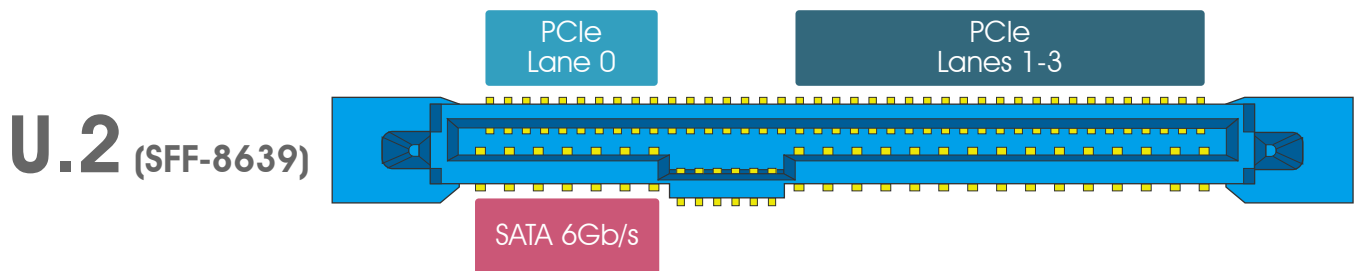


#### Ice Lake extends to Whitley platform to these key PCIe4.0 capabilities

- Higher performance storage (Next generation NVME) with double the speed of PCIe3.0
- Faster Ethernet capability to eliminate throughput bottlenecks for data intensive applications (100/200G NIC cards)
- FPGA/GPU accelerators to support emerging machine learning and deep learning workloads with uncompromised PCIe4.0 bandwidth and lowest latency

### » U.2

IEI provides new products supporting Next Generation Form Factor. The U.2 interface utilizes the existing physical interface, and the bandwidth is faster within PCIe 4.0 x4 signal, which is several times more than SATA interface. The U.2 interface combines the features of SATA and SAS, and uses the signal pin to fill the connector of the SAS interface. The L-type foolproof design, except the PCIe interface, also compatible with various mainstream hard disc interface such as SATA, SAS and SATA E.



### » Intel® Optane™ Persistent Memory 200 Series

This new persistent memory is designed to exist on the same bus alongside volatile memory such DRAM and often works in conjunction with it to achieve higher overall system memory capacity or to allow it to achieve better performance through DRAM caching.

MEMORY

DRAM

intel Optane™  
Persistent Memory

Increase Capacity