Intel® Data Center Blocks for Cloud – VSAN Ready Node

System Deployment and Configuration Guide

This document provides guidance for OS installation and identification of available system options for Intel Data Center Blocks for Cloud supporting Intel® Xeon® Scalable processors.

Rev 1.0
January 2018
<table>
<thead>
<tr>
<th>Date</th>
<th>Revision</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2018</td>
<td>1.0</td>
<td>Initial release</td>
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1. Introduction

Intel® Data Center Blocks (Intel® DCB) configurations are purpose-built with all-Intel® technology, optimized to address the needs of specific market segments. These fully-validated blocks deliver performance, reliability, and quality for solutions customer want and can trust to handle their demanding cloud workloads.

The Intel Data Center Blocks for Cloud – VSAN Ready Nodes are fully-validated, pre-configured server systems that include VMware® certifications for VSAN. With these VSAN Ready Nodes from Intel, resellers have access to the software-defined storage market, making it easier to deliver Software Defined Storage (SDS) solutions to customers.

VSAN Ready Nodes from Intel are powered by the latest Intel technology, and include Intel® Server Boards, Chassis, Intel® Xeon® Scalable processors, Intel® Solid State Drives (SSDs), and third-party memory in configurations optimized and pre-certified for VMware VSAN. Available in both All-Flash and Hybrid configurations, these server systems are optimized for outstanding storage performance. The Intel Xeon Scalable processors product family accelerates virtualized storage with features such as Intel® AVX 2.0 and Intel® Virtualization Technology. Intel SSDs provide high throughput and low latency, which maximizes power while reducing cost and space requirements. All-Flash configurations (AF) deploy Intel’s high-endurance NVMe SSDs for the caching tier, delivering excellent performance, high IOPS and low latency.

The following are examples of Intel single- and multi-node systems.

**Figure 1.** Intel® Server Multi-Node Systems VRN2224BPAF6 and VRN2224BPHY6

**Figure 2.** Intel® Server Single-Node Systems VRN2208WFAF82, VRN2208WFAF81 and VRN2208WFHY6

**Figure 3.** Intel® Server Single-Node System VRN2208WFAF83
1.1 VMWare* VSAN Certification and the Intel® DCB for Cloud Server System

Server systems within this product family were specifically created to offer Intel customers with preconfigured systems that are VMWare VSAN certified. Intel has extensively tested these systems to ensure best operation and reliability within the VMWare VSAN operating environment. This certification must be maintained to ensure continued best operation and reliability.

1.1.1 Maintaining VMWare* VSAN Certification

To maintain VMWare VSAN certification, no changes can be made to the predefined system configuration. Changing the system configuration may invalidate the VMWare VSAN certification performed by VMWare and Intel.

Changes to the pre-defined server system configuration that may impact VMWare certification include:

- Updating the factory-installed system software stack with revisions that are not VMWare-certified. The system software stack includes: system BIOS, BMC firmware, and ME firmware.¹
- Changing processor model and quantity.
- Changing the system memory.
- Adding or changing I/O devices such as add-in PCIe cards or modules.
- Adding or changing to non-matching (different manufacturer and/or model number) storage devices such as Hard Disk Drives (HDD) and any type of Solid State Drives (SSD) other than those shipped in the original system configuration.²

Further details can be found on the VMware website at https://blogs.vmware.com/virtualblocks/2017/03/14/can-cannot-change-vsan-readynode/.

Notes:

1. Intel releases updates to the system software stack for its standard server boards and systems via the System Update Package (SUP), which can be downloaded from the Intel website. However, since the Intel® DCB for Cloud server systems is VMWare-certified, refrain from changing the pre-installed system software stack unless updating it to another system software stack which has passed VMWare certification for that specific system configuration. Users of Intel® DCB for Cloud server systems should update the system software stack ONLY when a downloaded SUP identifies it as VMWare-certified for Intel® DCB for Cloud server systems. Check the README file included with every posted SUP for each server product family.

2. Adding or swapping like storage devices as shipped in the original system configuration is permitted and does not invalidate the VMWare certification.

1.1.2 Hybrid System Configurations

Hybrid systems have both HDDs and SSDs. Only like certified HDDs should be installed in hybrid system configurations to maintain VMWare certification. HDDs for hybrid configurations are not included and must be purchased separately. The following table identifies the certified HDD that was used for certification. Intel preinstalls certified boot and cache tier drives in all slots not identified in the next table. See Section 3 for drive installation instructions.

<table>
<thead>
<tr>
<th>Model</th>
<th>Vendor</th>
<th>Model Number</th>
<th>Description</th>
<th>Quantity</th>
<th>Install Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>VRN2224BPHY6</td>
<td>Seagate*</td>
<td>T2000NX0433</td>
<td>2.5&quot; HDD, 12Gb/s SAS 512E 2TB</td>
<td>16</td>
<td>Slots: 2, 3, 4, 5, 8, 9, 10, 11, 14, 15, 16, 17, 20, 21, 22, 23</td>
</tr>
<tr>
<td>VRN2208WFHY6</td>
<td>Seagate</td>
<td>T2000NX0433</td>
<td>2.5&quot; HDD, 12Gb/s SAS 512E 2TB</td>
<td>6</td>
<td>Slots: 2, 3, 4, 5, 6, 7</td>
</tr>
</tbody>
</table>
2. VMWare* VSAN Installation Requirements

For the Intel® DCB for Cloud Server System to function, a VMWare* VSAN operating environment must be installed by a customer.

This section provides information necessary to appropriately install the VMWare VSAN operating environment onto the Intel DCB for Cloud Server System. To maintain and comply with the VMWare VSAN certification, follow the installation steps as specified.

**Note:** Deviating from the documented OS installation requirements may invalidate the VMWare VSAN certification performed by VMWare and Intel.

1. Acquire the appropriate software license from a VMWare partner or authorized VMWare distributor/reseller.
2. Attach the installation media with the operating system installation image to the server system.
3. Identify the required boot device (see note below).
4. Power on the server. Press the <F2> key to enter the BIOS Setup Utility.
5. Make the device identified in step 3 the primary boot device.
6. Save changes and exit the BIOS Setup Utility by pressing the <F10> key.
7. Install VMWare VSAN operating environment onto the specified boot device. Follow the VMWare Installation wizard to complete the installation.
8. Restart the server after the installation has concluded.
9. Follow the remaining VMWare instructions to complete the installation.

**Note:** To maintain VMWare certification for any Intel® DCB for Cloud Server System, VMWare VSAN operating environment must be installed to a specific storage device within the specific Intel® DCB for Cloud Server System configuration.

The following table identifies the required boot device to install VMWare VSAN operating environment for each Intel DCB for Cloud Server System configuration listed.

<table>
<thead>
<tr>
<th>System Model</th>
<th>Storage Device Vendor</th>
<th>Storage Device Model Number</th>
<th>Device Location in the Server System</th>
</tr>
</thead>
<tbody>
<tr>
<td>VRN2224BPAF6 VRN2224BPHY6</td>
<td>Intel</td>
<td>Intel® SSD P3100 (256GB M.2, 80mm)</td>
<td>Installed on the slot 2 riser card AHW1UM2RISER2</td>
</tr>
<tr>
<td>VRN2208WFAF83 VRN2208WFAF82 VRN2208WFAF81 VRN2208WFHY6</td>
<td>Intel</td>
<td>Intel SSD S3520 Series (480GB, M.2, 80mm)</td>
<td>Installed in the M.2 port 1 on the motherboard</td>
</tr>
</tbody>
</table>
3. System Configuration Options

Table 3. Intel® Server System VRN2224BPHY6

<table>
<thead>
<tr>
<th>Intel Product Code (iPC): VRN2224BPHY6</th>
<th>Order Information:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fully integrated 2U, 4-Node system including: CPUs, Memory, and SATA SSDs</td>
<td>MM#: 961114</td>
</tr>
<tr>
<td></td>
<td>UPC: 00735858363341</td>
</tr>
<tr>
<td></td>
<td>EAN: 5032037118682</td>
</tr>
</tbody>
</table>

Product Type: Fully Integrated Server System
Chassis Form Factor: 2U Rack Mount
Chassis Dimensions: L=733mm, W=438mm, H=86.9mm
Outer Box Dimensions: L=983mm, W=577mm, H=260mm

Intel product code VRN2224BPHY6 includes the following:

1. 2U Chassis (24x2.5”) H2224XXLR3, which includes these components:
   - Front Panel FH2000FPANEL2
   - Power Distribution Board FXXCRPSPDB2
   - Power Interposer Board FXXCRPSPIB
   - 2130W 80 Plus Platinum Power Supply Units (PSU) FXX2130PCRPS
   - 24 x 2.5" Hot-Swap Drive Bay, which includes:
     - Tool-less Drive Carriers FXX25HSCAR3
   - Backplane HW24X25HS12G
   - Blank Compute Module Slot Fillers
   - Basic Rack Rail Kit AXXELVRAIL
   - 2130W 80 Plus Platinum Power Supply Units (PSU) FXX2130PCRPS

2. Intel® Xeon® Gold 5115 processor (10 Cores, 2.4Ghz, 85W) CD8067303535601
3. Bridge Board - 12G, IT mode-only AHWBPGB24
4. Intel® Remote Management Module Lite 2 Accessory Key AXXRMM4LITE2
5. Intel® Solid State Drive (SSD) P3100 256GB (M.2, 80mm) SSDPEKKA256G701
6. Intel® Solid State Drive (SSD) S4600 960GB 2.5" SFF SATA SSDSC2KG960G701
7. Microd RDimm 32GB 32G DR4, 288-pin 2666MHz (8 DIMMs per node/32 DIMMs per system) J47951-001

The following components are system-certified ingredients that are customer-supplied and do not ship with the Intel® DCB for Cloud server system purchase:

- Seagate® ZTB SAS 2.5” HDD – ST2000NX0433

Systems shipped to the US and Canada include two (2) North American power cords.

For a complete list of available FRU replacement parts, refer to the Intel® Server Board S2600BP Product Family Configuration Guide at the following Intel web site:

Table 4. Intel® Server System VRN2208WFHY6

<table>
<thead>
<tr>
<th>Product Code (iPC): VRN2208WFHY6</th>
<th>Order Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fully integrated 2U, 1-Node system, including: CPUs, Memory, and SATA SSDs</td>
<td>MM#: 962688</td>
</tr>
<tr>
<td>Intel product code VRN2208WFHY6 includes the following:</td>
<td>UPC: 00735858363358</td>
</tr>
<tr>
<td>(1) Intel Server System w/S260WFO, 2U1N, 8x2.5&quot; R2208WF0ZS, which includes these components:</td>
<td>EAN: 5032037118699</td>
</tr>
<tr>
<td>(1) 2U Chassis with Quick Reference Label affixed to top cover</td>
<td>Product Type: Fully Integrated Server System</td>
</tr>
<tr>
<td>(2) PCIe Riser Card Brackets:</td>
<td>Chassis Form Factor: 2U Rack Mount</td>
</tr>
<tr>
<td>(2) 3-slot PCIe* Riser Cards A2UL8RISER2</td>
<td>Chassis Dimensions: L=712mm, W=439mm, H=89mm</td>
</tr>
<tr>
<td>(1) 2-slot Low Profile PCIe* Riser Card A2UX8X4RISER</td>
<td></td>
</tr>
<tr>
<td>(8) – 2.5&quot; Hot-Swap Drive Bays with drive carriers and drive blanks</td>
<td>Outer Box Dimensions: L=983mm,W=577mm, H=260mm</td>
</tr>
<tr>
<td>(1) SAS/NVMe Combo Backplane F2U8X25S3PHS</td>
<td></td>
</tr>
<tr>
<td>(8) 2.5&quot; Hot-Swap Drive Tool-Less Carriers FXX25HSCAR3</td>
<td></td>
</tr>
<tr>
<td>(1) – Standard Control Panel Assembly</td>
<td></td>
</tr>
<tr>
<td>Board-only FXXFpanel2</td>
<td></td>
</tr>
<tr>
<td>300mm FP Cable H34381-xxx</td>
<td></td>
</tr>
<tr>
<td>(1) – Front I/O Panel Assembly (1 x VGA and 2 x USB)</td>
<td></td>
</tr>
<tr>
<td>620mm USB 3.0 Cable H76899-xxx</td>
<td></td>
</tr>
<tr>
<td>400mm Video Cable H62114-xxx</td>
<td></td>
</tr>
<tr>
<td>(1) – 250mm Backplane I2C Cable H91166-xxx</td>
<td></td>
</tr>
<tr>
<td>(2) – 730mm Mini SAS HD Cable AXXCBL730HDHD</td>
<td></td>
</tr>
<tr>
<td>(1) – 675mm Backplane Power Cable H82108-XXX</td>
<td></td>
</tr>
<tr>
<td>(1) – Standard 2U Air Duct H90554-xxx</td>
<td></td>
</tr>
<tr>
<td>(6) – Hot-Swap System Fans FR2UFAN60HSW</td>
<td></td>
</tr>
<tr>
<td>(8) – DIMM slot blanks G75158-00x</td>
<td></td>
</tr>
<tr>
<td>(1) – 1300W AC Power Supply Module (PSM) AXX1300TCRPS</td>
<td></td>
</tr>
<tr>
<td>(1) – Power Supply Bay blank insert</td>
<td></td>
</tr>
<tr>
<td>(2) – AC Power Cord retention strap assembly H23961-00x</td>
<td></td>
</tr>
<tr>
<td>(2) – CPU Heat Sink FXXCA78X108HS</td>
<td></td>
</tr>
<tr>
<td>(2) – CPU Heat Sink &quot;NO CPU&quot; mylar spacer insert J16115-XXX</td>
<td></td>
</tr>
<tr>
<td>(2) – Standard CPU Carrier H72851-xxx</td>
<td></td>
</tr>
<tr>
<td>(1) – 3x RMFBU Mounting Bracket H18238-00x</td>
<td></td>
</tr>
<tr>
<td>(1) – 250mm Fixed Mount Solid State Drive (SSD) Power Cable</td>
<td></td>
</tr>
<tr>
<td>(2) – Intel Xeon Gold 5115 (10 Cores, 2.4GHz, 85W) CD8067303535601</td>
<td></td>
</tr>
<tr>
<td>(2) – Intel® Solid State Drive (SSD) S4600 960GB 2.5&quot; SFF U.2 SSDSC2KG960G701</td>
<td></td>
</tr>
<tr>
<td>(1) – Intel® Solid State Drive (SSD) S3520 480GB (M.2, 80mm) SSDSCKJB480G701</td>
<td></td>
</tr>
<tr>
<td>(1) – Intel Remote Management Module Lite 2 AXXRMM4LITE2</td>
<td></td>
</tr>
<tr>
<td>(1) – Intel® RAID Controller RS3UC080J (IT Mode) RS3UC080J</td>
<td></td>
</tr>
<tr>
<td>(1) – 1300W AC Common Redundant Power Supply AXX1300TCRPS</td>
<td></td>
</tr>
<tr>
<td>(1) – Ethernet OCP Dual SFP+ XS27DA2OCPG1P5</td>
<td></td>
</tr>
<tr>
<td>(12) – RDIMM 32GB – DDR4, 288-pin, 2666MHz JA47951-001</td>
<td></td>
</tr>
<tr>
<td>(1) – Trusted Platform Module (TPM) 2.0 AXXTPMENC8</td>
<td></td>
</tr>
<tr>
<td>These components are system-certified and customer-supplied but do not ship with the Intel® DCB for Cloud server system:</td>
<td></td>
</tr>
<tr>
<td>(6) – Seagate 4TB SAS 3.5&quot; HDD - ST4000NM0034</td>
<td></td>
</tr>
<tr>
<td>Systems shipped to the US and Canada include two (2) North American power cords.</td>
<td></td>
</tr>
<tr>
<td>For a complete list of available FRU parts, refer to the Intel® Server Board S2600WF Product Family Configuration Guide at: <a href="https://www.intel.com/content/www/us/en/motherboards/server-motherboards/server-board-s2600wf.html">https://www.intel.com/content/www/us/en/motherboards/server-motherboards/server-board-s2600wf.html</a></td>
<td></td>
</tr>
</tbody>
</table>
**Table 5. Intel® Server System VRN2224BPAF6**

<table>
<thead>
<tr>
<th>Product Code (iPC): VRN2224BPAF6</th>
<th>Order Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fully integrated 2U, 4-Node system, including:</strong> CPUs, Memory, and SATA and Optane™ SSDs</td>
<td>MM#: 961104</td>
</tr>
<tr>
<td><strong>Intel product code VRN2224BPAF6 includes the following:</strong></td>
<td>UPC: 00735858363334</td>
</tr>
<tr>
<td>(1) 2U Chassis (24x2.5&quot;) H2224XXLR3, which includes these components:</td>
<td>EAN: 5032037118675</td>
</tr>
<tr>
<td>(1) Front Panel FH2000FPANEL2</td>
<td>Product Type: Fully Integrated Server System</td>
</tr>
<tr>
<td>(1) Power Distribution Board FXXCRPSPDB2</td>
<td>Chassis Form Factor: 2U Rack Mount</td>
</tr>
<tr>
<td>(1) Power Interposer Board FXXCRPSPIB</td>
<td>Chassis Dimensions: L=733mm, W=438mm, H=86.9mm</td>
</tr>
<tr>
<td>(2) 2130W 80 Plus Platinum PSUs FXX2130PCRPS</td>
<td>Outer Box Dimensions: L=983mm, W=577mm, H=266mm</td>
</tr>
<tr>
<td>(1) 24 x 2.5” Hot-Swap Drive Bay, which includes:</td>
<td></td>
</tr>
<tr>
<td>(24) Tool-less Drive Carriers FXX25HSCAR3</td>
<td></td>
</tr>
<tr>
<td>(1) Backplane HW24X25HS12G</td>
<td></td>
</tr>
<tr>
<td>(4) Blank Compute Module Slot Fillers</td>
<td></td>
</tr>
<tr>
<td>(1) Basic Rack Rail AXXELVRAIL</td>
<td></td>
</tr>
<tr>
<td><strong>NOTE:</strong> The rail kit only supports specific rack type with 3/8” square and 7.1mm round holes.</td>
<td></td>
</tr>
<tr>
<td>(4) Compute Module (w/TPM 2.0, 2x10GbE SFP+ &amp; 2x1GbE, RDMA) HNS2600BPS24, which includes:</td>
<td></td>
</tr>
<tr>
<td>(1) 1U Node Tray</td>
<td></td>
</tr>
<tr>
<td>(1) Intel Server Board S2600BPS</td>
<td></td>
</tr>
<tr>
<td>(1) Power Docking Board FHWBPNPB24</td>
<td></td>
</tr>
<tr>
<td>(3) 40x56mm Dual Rotor Managed Fans FXX4056DRFAN2</td>
<td></td>
</tr>
<tr>
<td>(1) 1U Passive Heat Sink for CPU #1 CUAL FXXHP78X108HS</td>
<td></td>
</tr>
<tr>
<td>(1) 1U Passive Heat Sink for CPU #2 AI FXXEA78X108HS</td>
<td></td>
</tr>
<tr>
<td>(2) Standard Carrier Clips</td>
<td></td>
</tr>
<tr>
<td>(1) Air Duct</td>
<td></td>
</tr>
<tr>
<td>(1) External VGA Port Bracket</td>
<td></td>
</tr>
<tr>
<td>(1) Riser Slot 2 Riser Card w/80mm M.2 Solid State Drive (SSD) slot AHW1UM2RISER2</td>
<td></td>
</tr>
<tr>
<td>(8) Intel® Xeon Gold 5118 processor (12 Cores, 2.3Ghz, 105W ) CD8067303536100</td>
<td></td>
</tr>
<tr>
<td>(4) Intel® Optane™ SSD DC P4800X 375GB, 2.5in PCIe x4 SSDPE2KE016T701</td>
<td></td>
</tr>
<tr>
<td>(4) Intel Solid State Drive (SSD) P3100 256GB (M.2, 80mm) SSDPEKKA256G701</td>
<td></td>
</tr>
<tr>
<td>(20) Intel Solid State Drive (SSD) DC S4500 1.9TB, 2.5in SATA 6Gb/s SSDSC2KB019T701</td>
<td></td>
</tr>
<tr>
<td>(4) Bridge Board - 12G, IT mode only AHWBPBGB24</td>
<td></td>
</tr>
<tr>
<td>(4) Intel Remote Management Module Lite 2 AXXRM4LITE2</td>
<td></td>
</tr>
<tr>
<td>(32) Micron RDIMM 32GB – DDR4, 288-pin, 2400MHz (8 DIMMs per node/32 DIMMs per system) J47951-001</td>
<td></td>
</tr>
</tbody>
</table>

Systems shipped to the US and Canada include two (2) North American power cords.

For a complete list of available FRU replacement parts, refer to the Intel® Server Board S2600BP Product Family Configuration Guide at the following Intel web site:

Table 6. Intel® Server System VRN2208WFAF81

Product Code (iPC): VRN2208WFAF81

| Fully Integrated 2U, 1-Node system, including: CPUs, Memory, and SATA + Optane SSDs |

Order Information

<table>
<thead>
<tr>
<th>MM#</th>
<th>961061</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPC</td>
<td>00735858363327</td>
</tr>
<tr>
<td>EAN</td>
<td>5032037118668</td>
</tr>
<tr>
<td>Product Type: Fully Integrated Server System</td>
<td></td>
</tr>
<tr>
<td>Chassis Form Factor: 2U Rack Mount</td>
<td></td>
</tr>
<tr>
<td>Chassis Dimensions: L=712mm, W=439mm, H=89mm</td>
<td></td>
</tr>
<tr>
<td>Outer Box Dimensions: L=983mm,W=577mm, H=260mm</td>
<td></td>
</tr>
</tbody>
</table>

Intel product code VRN2208WFAF81 includes the following:

1. Intel Server System w/S260WFO, 2U1N, 8x2.5" R2208WF0ZS, which includes the following components:
   1. 2U Chassis with Quick Reference Label affixed to top cover
   2. Intel Server Board S2600WFO (No Onboard LAN) S2600WF0

2. PCIe Riser Card Brackets:
   2.1 3-slot PCIe* Riser Cards A2UL8RISER2
   2.2 1-slot low profile PCIe* Riser Card A2UX8X4RISER

3. (8) – 2.5" Hot-Swap Drive Bays with drive carriers and drive blanks
   3.1 SAS/NVMe Combo Backplane F2U8X25S3PHS
   3.2 2.5" Hot-Swap Drive Tool-Less Carriers FXX25HSCAR3

4. (1) – Standard Control Panel Assembly
   4.1 Board-only FXXFPANEL2
   4.2 300mm FP Cable H34381-xxx

5. (1) – Front I/O Panel Assembly (1 x VGA and 2 x USB)
   5.1 620mm USB 3.0 Cable H76899-xxx
   5.2 400mm Video Cable H62114-xxx

6. (1) – 250mm Backplane I2C Cable H91166-xxx

7. (2) – 730mm Mini SAS HD Cable AXXCBL730HDHD

8. (1) – 675mm Backplane Power Cable H82108-XXX

9. (1) – Standard 2U Air Duct H90554-xxx

10. (6) – Hot-Swap System Fans FR2UFAN60H5W

11. (8) – DIMM slot blanks G75158-00x

12. (1) – 1300W AC Power Supply Module AXX1300TCRPS

13. (1) – Power Supply Bay blank insert

14. (2) – AC Power Cord retention strap assembly H23961-00x

15. (2) – CPU Heatsink FXXCA78X108HS

16. (2) – CPU Heatsink "NO CPU" mylar spacer insert J16115-XXX

17. (2) – Standard CPU Carrier H72851-xxx

18. (1) – 3x RMFBU Mounting Bracket H18238-00x

19. (1) – 250mm Fixed Mount Solid State Drive (SSD) Power Cable

20. (2) – Intel Xeon Gold 5118 (12 Cores, 2.3Ghz, 105W) CD8067303536100

21. (2) – Intel Optane SSD DC P4800X 375GB, 2.5in PCIe x4 SSDPE2KE016T701

22. (1) – Intel SSD S3520 480GB (M.2, 80mm) SSDSCKJB480G701

23. (6) – Intel SSD S4500 1.92TB 2.5" SATA SSDSC2KB019T701

24. (1) – Intel Remote Management Module Lite 2 AXXRMM4LITE2

25. (1) – Intel RAID Controller RS3UC080J (IT Mode) RS3UC080J

26. (1) – OCU Cable – 530mm AXXCBL530CVC

27. (1) – OCU Cable – 470mm AXXCBL470CVCR

28. (1) – 1300W AC Common Redundant Power Supply AXX1300TCRPS

29. (1) – Ethernet OCP Dual SFP+ X527DA20CPG1P5

30. (12) – RDIMM 32GB - DDR4, 288-pin, 2666MHz J47951-001

31. (1) – Trusted Platform Module (TPM) 2.0 AXXTMENC8

Systems shipped to the US and Canada include two (2) North American power cords.

For a complete list of available FRU parts, refer to the Intel® Server Board S2600WF Product Family Configuration Guide at: https://www.intel.com/content/www/us/en/motherboards/server-motherboards/server-board-s2600wf.html
<table>
<thead>
<tr>
<th>Table 7. Intel® Server System VRN2208WFAF82</th>
</tr>
</thead>
</table>

**Product Code (iPC): VRN2208WFAF82**

*Fully Integrated 2U, 1-Node system, including: CPUs, Memory and SATA and Optane SSDs*

<table>
<thead>
<tr>
<th><strong>Order Information</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>MM#: 961058</td>
</tr>
<tr>
<td>UPC: 00735858363310</td>
</tr>
<tr>
<td>EAN: 5032037118651</td>
</tr>
<tr>
<td>Product Type: Fully Integrated Server System</td>
</tr>
<tr>
<td>Chassis Form Factor: 2U Rack Mount</td>
</tr>
<tr>
<td>Chassis Dimensions: L=712mm, W=439mm, H=89mm</td>
</tr>
<tr>
<td>Outer Box Dimensions: L=983mm, W=577mm, H=260mm</td>
</tr>
</tbody>
</table>

Intel product code **VRN2208WFAF82** includes the following:

1. Intel Server System w/S2600WF0, 2U1N, 8x2.5" **R2208WF02S**, including these components:
   
   1. 2U Chassis with Quick Reference Label affixed to top cover
   2. Intel Server Board S2600WF0 (No Onboard LAN) **S2600WF0**

2. PCIe Riser Card brackets:
   - (2) 3-slot PCIe Riser Card **A2UL8RISER2**
   - (1) 2-slot low profile PCIe Riser Card **A2UX8X4RISER**

3. (8) 2.5" Hot-Swap Drive Bays with drive carriers and drive blanks
   - (1) SAS/NVMe Combo Backplane **F2U8X25S3PHS**
   - (8) 2.5" Hot-Swap Drive Tool-Less Carriers **FXX25HSCAR3**

(1) Standard Control Panel Assembly

- 300mm FP Cable **H34381-xxx**
- 620mm USB 3.0 Cable **H76899-xxx**
- 400mm Video Cable **H62114-xxx**
- 250mm Backplane I2C Cable **H91166-xxx**
- 730mm Mini SAS HD Cable **Axxcbl730hhd**
- 675mm Backplane Power Cable **H82108-XXX**
- Standard 2U Air Duct **H90554-xxx**
- 250mm Fixed Mount Solid State Drive (SSD) Power Cable

(6) Hot-Swap System Fans **FR2UFAN60H5W**

(8) DIMM slot blanks **G75158-00x**

(1) 1300W AC Power Supply Module (PSM) **AXX1300TCRPS**

(1) Power Supply Bay blank insert

(2) AC Power Cord retention strap assembly **H23961-00x**

(2) CPU Heatsink **FXXCA78X108HS**

(2) CPU Heatsink "NO CPU" mylar spacer insert **J16115-XXX**

(2) Standard CPU Carrier **H72851-xxx**

(1) 3x RMFBU Mounting Bracket **H18238-00x**

(1) 250mm Fixed Mount Solid State Drive (SSD) Power Cable

(2) Intel Xeon® Gold 5120 (14 Cores, 2.2Gzh, 105W) **CD8067303535900**

(2) Intel Optane SSD DC P4800X 375GB, 2.5in PCIe x4 **SSDPE2KE016T701**

(1) Intel SSD S3520 480GB (M.2, 80mm) **SSDSCKB480G701**

(6) Intel SSD P4500 2TB 2.5" NVMe U.2 **SSDPE2KX020T701**

(1) Remote Management Module Lite 2 **AXXRMM4LITE2**

(1) Intel® PCIe Switch AIC (8 ports) **AXXPSWX08080**

(1) OCuLink Cable – 725mm cable kit **A2U8PSWCXCK1**

(1) OCuLink Cable – 530mm **AXXCBLS50CVR**

(1) OCuLink Cable – 470mm **AXXCBL470CVC**

(1) 1300W AC Common Redundant Power Supply **AXX1300TCRPS**

(1) Ethernet OCP Quad SFP+ **X527DA40CPG1P5**

(12) RDIMM 32GB - DDR4, 288-pin, 2666MHz **J47951-001**

(1) Trusted Platform Module (TPM) 2.0 **AXXTPMENC8**

**Systems shipped to the US and Canada include two (2) North American power cords.**

Table 8. Intel® Server System VRN2208WFAF83

<table>
<thead>
<tr>
<th>Product Code (iPC): VRN2208WFAF83</th>
<th>Order Information</th>
</tr>
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<tbody>
<tr>
<td>Fully Integrated 2U, 1-Node system, including: CPUs, Memory and Optane and NVMe SSDs</td>
<td>Product Code (iPC): VRN2208WFAF83</td>
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<td>MM#: 961057</td>
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<tr>
<td></td>
<td>UPC: 00735858363303</td>
</tr>
<tr>
<td></td>
<td>EAN: 5032037118644</td>
</tr>
<tr>
<td></td>
<td>Product Type: Fully Integrated Server System</td>
</tr>
<tr>
<td></td>
<td>Chassis Form Factor: 2U Rack Mount</td>
</tr>
<tr>
<td></td>
<td>Chassis Dimensions: L=712mm, W=439mm, H=89mm</td>
</tr>
<tr>
<td></td>
<td>Outer Box Dimensions: L=983mm, W=577mm, H=260mm</td>
</tr>
</tbody>
</table>

Intel product code VRN2208WFAF83 includes the following:

(1) Intel Server System w/S260WFO, 2U1N, 8x2.5" R2208WF02S, which includes these components:
   (1) 2U Chassis with Quick Reference Label affixed to top cover
   (1) Intel Server Board S260WFO (No Onboard LAN) S2600WF0
   (2) PCIe Riser Card Brackets:
       (2) 3-slot PCIe Riser Cards A2UL8RISER2
       (1) 2-slot low profile PCIe Riser Card A2UX8X4RISER
   (8) – 2.5" Hot-Swap Drive Bays with drive carriers and drive blanks
       (1) SAS/NVMe Combo Backplane F2U8X25S3PHS
       (8) 2.5" Hot-Swap Drive Tool-Less Carriers FXX25HSCAR3
   (1) – Standard Control Panel Assembly
       Board only FXXFPANEL2
   (300mm FP Cable H34381-xxx
   (1) – Front I/O Panel Assembly (1 x VGA and 2 x USB)

       620mm USB 3.0 Cable H76899-xxx
       400mm Video Cable H62114-xxx
   (1) – 250mm Backplane I2C Cable H91166-xxx
   (2) – 730mm Mini SAS HD Cable AXXP3SWX08080
   (1) – 675mm Backplane Power Cable H82108-XXX
   (1) – Standard 2U Air Duct H90554-XXX
   (6) – Hot-Swap System Fans FR2UFAN60HSW
   (8) – DIMM slot blanks G75158-00x
   (1) – 1300W AC Power Supply Module (PSM) Axx1300tcrps
   (1) – Power Supply Bay blank insert
   (2) – AC Power Cord retention strap assembly H23961-00x
   (2) – CPU Heat Sink FXXCA78X108HS
   (2) – CPU Heat Sink “NO CPU” mylar spacer insert J16115-XXX
   (2) – Standard CPU Carrier H72851-xxx
   (1) – 3x RMFBU Mounting Bracket H18238-00x
   (1) – 250mm Fixed Mount SSD Power Cable

(2) Intel® Xeon Gold 6152 processor (22 Cores, 2.1Ghz, 140W) CD8067303406000
(4) Intel Optane SSD P4800 375GB 2.5” SFF U.2 SSDPE21K375GA01
(1) Intel Solid State Drive (SSD) S3520 480GB (M.2, 80mm) SSDSC2KG480G701
(12) Intel Solid State Drive (SSD) P4500 2TB 2.5” NVMe U.2 SSDPE2XX020T701
(1) 2U 8x2.5 Combo HSBP A2U8X25S3PHS
(2) Intel PCIe Switch AIC (8 ports) AXXP3SWX08080
(2) OCuLink Cable – 875mm Cable Kit A2U8PSWCCXK1
(2) OCuLink Cable – 700mm AXXCBL700CVCR
(1) OCuLink Cable – 530mm AXXCBL530CVCR
(1) OCuLink Cable – 470mm AXXCBL470CVCR
(1) 1300W AC Common Redundant Power Supply AXX1300TCRPS
(1) Ethernet OCP Quad SFP+ X527DA4OCGP1P5
(24) RDIMM 32GB - DDR4, 288-pin, 2666MHz J47951-001
(1) Trusted Platform Module (TPM) 2.0 AXXTPMENC8

Systems shipped to the US and Canada include two (2) North American power cords.

For a complete list of available FRU parts, refer to the Intel® Server Board S2600WF Product Family Configuration Guide at: https://www.intel.com/content/www/us/en/motherboards/server-motherboards/server-board-s2600wf.html
3.1 Rail Kit Options

To install a rack mount server system into a rack, use a rail mounting kit.

Intel® DCB for Cloud server system models VRN2224BPAF6 and VRN2224BPHY6 include Intel® Enhanced Value Rail Kit AXXELVRAIL. The premium feature rail kit (AXXFULLRAIL) can be ordered separately. No Cable Management Arm (CMA) support is available for models VRN2224BPAF6 and VRN2224BPHY6.

All other Intel DCB for Cloud server system models do not include rail kits in the shipping product. Rail kits for these systems must be ordered separately. All rail kits supported on VRN2208WF models are listed in the following table.

Table 9. Intel® Rail Kit accessory options for VRN2208WF models

<table>
<thead>
<tr>
<th>iPC – Intel Product Code</th>
<th>Product Order Information</th>
<th>Product Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>AXXELVRAIL</td>
<td>MM# – 920970</td>
<td>Enhanced Value Rail Kit</td>
</tr>
<tr>
<td></td>
<td>UPC – 00735858244367</td>
<td>• Works for all 438mm-wide Intel® Rack Chassis 1U, 2U, 4U</td>
</tr>
<tr>
<td></td>
<td>EAN – 5032037038980</td>
<td>• Bracket adjustment within 609.6mm~765mm</td>
</tr>
<tr>
<td></td>
<td>MOQ – 1</td>
<td>• 424.2mm maximum travel length</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 2/3 extension from rack</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 59 kg max support weight</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Tool-less chassis attach</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Tools required to attach rails to rack</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• No Cable Management Arm support</td>
</tr>
<tr>
<td>AXXSHRTRAIL</td>
<td>MM# – 939210</td>
<td>2U Premium Feature Rails with no CMA Support</td>
</tr>
<tr>
<td></td>
<td>UPC – 00735858291996</td>
<td>• Travel distance 788mm</td>
</tr>
<tr>
<td></td>
<td>EAN – 5032037070553</td>
<td>• Bracket adjustment from 594.8mm to 813mm</td>
</tr>
<tr>
<td></td>
<td>MOQ – 1</td>
<td>• Tool-less installation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Supports up to 45Kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Full extension from rack</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Kit includes: Rails, screws, installation manual</td>
</tr>
<tr>
<td>AXXFULLRAIL</td>
<td>MM# – 939209</td>
<td>2U+ Premium Feature Rails with CMA support.</td>
</tr>
<tr>
<td></td>
<td>UPC – 00735858291989</td>
<td>• Travel distance 800mm</td>
</tr>
<tr>
<td></td>
<td>EAN – 5032037070546</td>
<td>• Bracket adjustment within 594.8mm~813mm</td>
</tr>
<tr>
<td></td>
<td>MOQ – 1</td>
<td>• Tool-less installation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Full extension from rack</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Kit includes: Rails, screws, installation manual</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• For Cable Management Arm, order AXXCMA2</td>
</tr>
<tr>
<td>AXXCMA2</td>
<td>MM# – 939211</td>
<td>Cable Management Arm</td>
</tr>
<tr>
<td></td>
<td>UPC – 00735858292009</td>
<td>• Compatible with AXXFULLRAIL only</td>
</tr>
<tr>
<td></td>
<td>EAN – 5032037070560</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MOQ – 1</td>
<td></td>
</tr>
</tbody>
</table>
4. Drive Extraction and Installation

**Note:** To maintain proper system cooling, all externally accessible drive bays must be populated with a drive carrier. Each drive carrier must have a hard disk drive (HDD), Solid State Device (SSD), or a supplied drive blank installed.

### 4.1 Drive Carrier Extraction

![Figure 4. Drive carrier extraction from chassis](image)

Before a new drive can be installed, the current drive carrier must be extracted from the chassis.

1. Remove the drive carrier from the chassis by first pressing the button on the carrier face plate to release the lever (see letter “A”).
2. Using the lever, pull the carrier from the drive bay (see letter “B”).

### 4.2 Drive Carrier Insertion/Installation

![Figure 5. Drive carrier insertion into chassis](image)

1. Align the drive assembly with the open drive bay
2. With the lever in the open position, insert the drive assembly into the drive bay (See letter “A”) and push forward until the drive makes contact with the backplane
3. Complete the drive installation by closing the drive assembly lever until it locks into place (See letter “B”)
4.3 2.5” HDD/SSD Drive Carrier Assembly

1. Remove the drive or drive blank from the carrier by gently rotating the top edge of a carrier rail outwards while at the same time pushing the drive or drive blank up from the bottom (as shown above).

Figure 6. 2.5” Drive Carrier Assembly – Drive / Drive Blank Removal

2. With the rear drive connector positioned towards the back of the drive carrier, align and position the mounting holes on one side of the drive over the mounting tabs located on the drive carrier side rail (see letter “A”).
3. Lower the other side of the drive into the carrier (see letter “B”) and press down on the drive until all mounting tabs are locked in place.

Figure 7. 2.5” Drive carrier assembly – drive installation into carrier
**Note:** The 2.5" drive blank and drive carrier each have an alignment feature (shown above) to ensure proper assembly. When re-installing a drive blank in to the drive carrier, ensure the features are aligned prior to installation. Failure to properly install a drive blank may result with the carrier assembly not fitting properly in to the chassis drive bay.

![Figure 8. 2.5" Drive carrier assembly – alignment features](image-url)
### Appendix A. Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMC</td>
<td>Baseboard Management Controller</td>
</tr>
<tr>
<td>BIOS</td>
<td>Basic Input/Output System</td>
</tr>
<tr>
<td>CMA</td>
<td>Cable Management Arm</td>
</tr>
<tr>
<td>CPU</td>
<td>Central Processing Unit</td>
</tr>
<tr>
<td>CRPS</td>
<td>Common Redundant Power Supply</td>
</tr>
<tr>
<td>DCB</td>
<td>Intel® Data Center Blocks</td>
</tr>
<tr>
<td>DDR4</td>
<td>Double-data Rate 4</td>
</tr>
<tr>
<td>DIMM</td>
<td>Dual In-line Memory Module</td>
</tr>
<tr>
<td>EAN</td>
<td>European Article Number</td>
</tr>
<tr>
<td>FP</td>
<td>Front Panel</td>
</tr>
<tr>
<td>FRU</td>
<td>Field Replaceable Unit</td>
</tr>
<tr>
<td>GB</td>
<td>Gigabyte</td>
</tr>
<tr>
<td>GbE</td>
<td>Gigabit Ethernet</td>
</tr>
<tr>
<td>GBPS</td>
<td>Gigabytes Per Second</td>
</tr>
<tr>
<td>GT/s</td>
<td>GigaTransfers per second</td>
</tr>
<tr>
<td>HDD</td>
<td>Hard Disk Drive</td>
</tr>
<tr>
<td>IOPS</td>
<td>Input/output Operations Per Second</td>
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<tr>
<td>iPC</td>
<td>Intel Product Code</td>
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<tr>
<td>iPN</td>
<td>Intel Part Number</td>
</tr>
<tr>
<td>KB</td>
<td>Kilobyte</td>
</tr>
<tr>
<td>LAN</td>
<td>Local Area Network</td>
</tr>
<tr>
<td>LED</td>
<td>Light-Emitting Diode</td>
</tr>
<tr>
<td>M.2</td>
<td>specification for internally mounted computer expansion cards and associated connectors</td>
</tr>
<tr>
<td>MB</td>
<td>Megabyte</td>
</tr>
<tr>
<td>ME</td>
<td>Management Engine</td>
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<td>MHz</td>
<td>Megahertz</td>
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<tr>
<td>MM#</td>
<td>Master Material Order Number/Material Management Number</td>
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<tr>
<td>MOQ</td>
<td>Minimum Order Quantity</td>
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<tr>
<td>OS</td>
<td>Operating System</td>
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<tr>
<td>PCie*</td>
<td>Peripheral Component Interconnect Express*</td>
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<tr>
<td>POST</td>
<td>Power-on Self-Test</td>
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<tr>
<td>PSU</td>
<td>Power Supply Unit</td>
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<td>RAM</td>
<td>Random Access Memory</td>
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<tr>
<td>RDIMM</td>
<td>Registered DIMM</td>
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<tr>
<td>RDMA</td>
<td>Remote Direct Memory Access</td>
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<tr>
<td>RMM</td>
<td>Remote Management Module</td>
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<tr>
<td>ROM</td>
<td>Read-Only Memory</td>
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<tr>
<td>SAS</td>
<td>Serial Attached SCSI</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
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<tr>
<td>--------------</td>
<td>-------------</td>
</tr>
<tr>
<td>SATA</td>
<td>Serial ATA (High-speed serial data version of the disk ATA interface)</td>
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<tr>
<td>SCSI</td>
<td>Small Computer System Interface</td>
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<tr>
<td>SDS</td>
<td>Software Defined Storage</td>
</tr>
<tr>
<td>SFF</td>
<td>Small Form Factor</td>
</tr>
<tr>
<td>SFF NVMe</td>
<td>NVMe SSD in a 2.5&quot; Form Factor</td>
</tr>
<tr>
<td>SFP+</td>
<td>The enhanced Small Form-factor Pluggable transceiver</td>
</tr>
<tr>
<td>SSD</td>
<td>Solid State Drive</td>
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<td>SUP</td>
<td>System Update Package</td>
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<td>TB</td>
<td>Terabyte</td>
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<tr>
<td>TPM</td>
<td>Trusted Platform Module</td>
</tr>
<tr>
<td>TPS</td>
<td>Technical Product Specification</td>
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<tr>
<td>UPC</td>
<td>Universal Product Code</td>
</tr>
<tr>
<td>USB</td>
<td>Universal Serial Bus (standard serial expansion bus meant for connecting peripherals)</td>
</tr>
<tr>
<td>VGA</td>
<td>Video Graphics Array</td>
</tr>
<tr>
<td>VSAN</td>
<td>Virtual Storage Area Network</td>
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