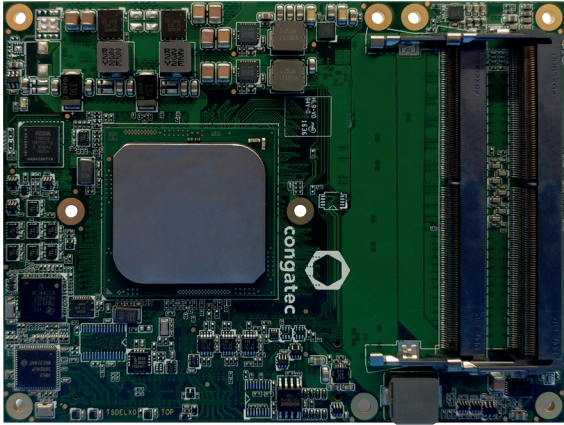


# SERVER ON MODULE

## conga-B7XD

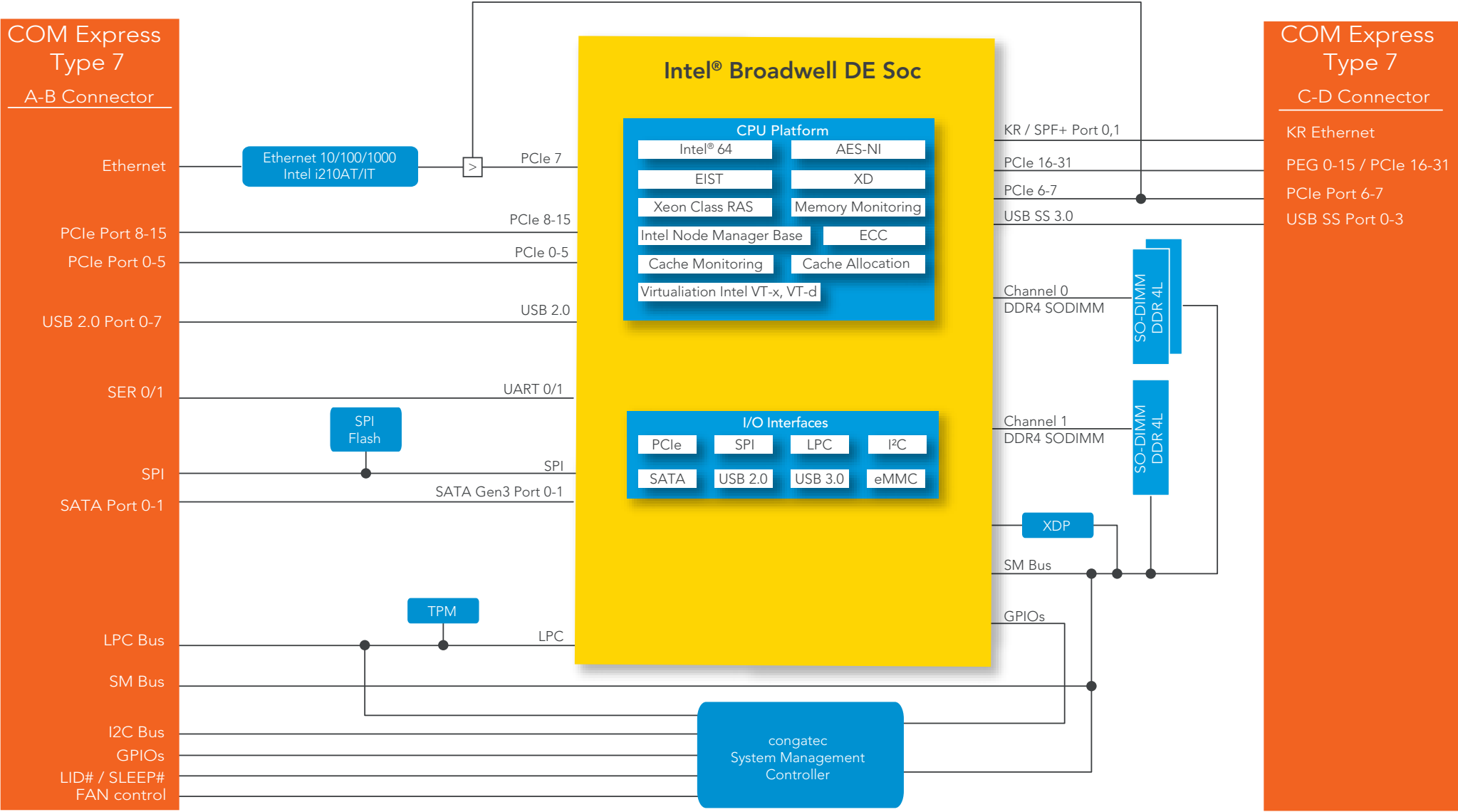


- COM Express Type 7
- Up to Intel® Xeon® D 1577 with 16 Cores
- 2x 10 Gigabit Ethernet KR Interface
- 32x PCI Express lanes
- up to 16 processor cores
- up to 24MByte Cache with Intel Cache Allocation Technology
- industrial grade variants



|                           |   |   |  |  |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |                                 |         |           |         |                       |               |         |           |         |                       |                                 |         |           |         |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |               |         |           |         |                       |                                 |         |           |         |
|---------------------------|---|---|--|--|--------------------|---------------------------------|----------|------------|---------|--------------------|---------------------------------|---------|------------|---------|--------------------|---------------------------------|---------|-----------|---------|-----------------------|---------------|---------|-----------|---------|-----------------------|---------------------------------|---------|-----------|---------|--------------------|---------------------------------|----------|------------|---------|--------------------|---------------------------------|---------|------------|---------|--------------------|---------------|---------|-----------|---------|-----------------------|---------------------------------|---------|-----------|---------|
| Formfactor                | Formfactor COM Express® Basic   (95 x 125 mm)   Type 7 Connector Layout   |   |  |  |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |                                 |         |           |         |                       |               |         |           |         |                       |                                 |         |           |         |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |               |         |           |         |                       |                                 |         |           |         |
| CPU                       | <p><b>Commercial versions</b></p> <table border="1"> <tr> <td>Intel® Xeon® D1577</td> <td>2.1 GHz (Burst)   1.3 GHz Clock</td> <td>16 Cores</td> <td>cache 24MB</td> <td>45W TDP</td> </tr> <tr> <td>Intel® Xeon® D1548</td> <td>2.6 GHz (Burst)   2.0 GHz Clock</td> <td>8 Cores</td> <td>cache 12MB</td> <td>45W TDP</td> </tr> <tr> <td>Intel® Xeon® D1527</td> <td>2.7 GHz (Burst)   2.2 GHz Clock</td> <td>4 Cores</td> <td>cache 6MB</td> <td>35W TDP</td> </tr> <tr> <td>Intel® Pentium™ D1509</td> <td>1.5 GHz Clock</td> <td>2 Cores</td> <td>cache 3MB</td> <td>19W TDP</td> </tr> <tr> <td>Intel® Pentium™ D1508</td> <td>2.6 GHz (Burst)   2.2 GHz Clock</td> <td>2 Cores</td> <td>cache 3MB</td> <td>25W TDP</td> </tr> </table> <p><b>Industrial versions</b></p> <table border="1"> <tr> <td>Intel® Xeon® D1559</td> <td>2.1 GHz (Burst)   1.5 GHz Clock</td> <td>12 Cores</td> <td>cache 18MB</td> <td>45W TDP</td> </tr> <tr> <td>Intel® Xeon® D1539</td> <td>2.2 GHz (Burst)   1.6 GHz Clock</td> <td>8 Cores</td> <td>cache 12MB</td> <td>35W TDP</td> </tr> <tr> <td>Intel® Xeon® D1529</td> <td>1.3 GHz Clock</td> <td>4 Cores</td> <td>cache 6MB</td> <td>20W TDP</td> </tr> <tr> <td>Intel® Pentium™ D1519</td> <td>2.1 GHz (Burst)   1.5 GHz Clock</td> <td>4 Cores</td> <td>cache 6MB</td> <td>25W TDP</td> </tr> </table> |   |  |  | Intel® Xeon® D1577 | 2.1 GHz (Burst)   1.3 GHz Clock | 16 Cores | cache 24MB | 45W TDP | Intel® Xeon® D1548 | 2.6 GHz (Burst)   2.0 GHz Clock | 8 Cores | cache 12MB | 45W TDP | Intel® Xeon® D1527 | 2.7 GHz (Burst)   2.2 GHz Clock | 4 Cores | cache 6MB | 35W TDP | Intel® Pentium™ D1509 | 1.5 GHz Clock | 2 Cores | cache 3MB | 19W TDP | Intel® Pentium™ D1508 | 2.6 GHz (Burst)   2.2 GHz Clock | 2 Cores | cache 3MB | 25W TDP | Intel® Xeon® D1559 | 2.1 GHz (Burst)   1.5 GHz Clock | 12 Cores | cache 18MB | 45W TDP | Intel® Xeon® D1539 | 2.2 GHz (Burst)   1.6 GHz Clock | 8 Cores | cache 12MB | 35W TDP | Intel® Xeon® D1529 | 1.3 GHz Clock | 4 Cores | cache 6MB | 20W TDP | Intel® Pentium™ D1519 | 2.1 GHz (Burst)   1.5 GHz Clock | 4 Cores | cache 6MB | 25W TDP |
| Intel® Xeon® D1577        | 2.1 GHz (Burst)   1.3 GHz Clock   | 16 Cores  | cache 24MB   | 45W TDP                                    |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |                                 |         |           |         |                       |               |         |           |         |                       |                                 |         |           |         |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |               |         |           |         |                       |                                 |         |           |         |
| Intel® Xeon® D1548        | 2.6 GHz (Burst)   2.0 GHz Clock   | 8 Cores   | cache 12MB   | 45W TDP                                    |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |                                 |         |           |         |                       |               |         |           |         |                       |                                 |         |           |         |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |               |         |           |         |                       |                                 |         |           |         |
| Intel® Xeon® D1527        | 2.7 GHz (Burst)   2.2 GHz Clock   | 4 Cores   | cache 6MB  | 35W TDP                                    |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |                                 |         |           |         |                       |               |         |           |         |                       |                                 |         |           |         |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |               |         |           |         |                       |                                 |         |           |         |
| Intel® Pentium™ D1509     | 1.5 GHz Clock   | 2 Cores   | cache 3MB  | 19W TDP                                    |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |                                 |         |           |         |                       |               |         |           |         |                       |                                 |         |           |         |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |               |         |           |         |                       |                                 |         |           |         |
| Intel® Pentium™ D1508     | 2.6 GHz (Burst)   2.2 GHz Clock   | 2 Cores   | cache 3MB  | 25W TDP                                    |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |                                 |         |           |         |                       |               |         |           |         |                       |                                 |         |           |         |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |               |         |           |         |                       |                                 |         |           |         |
| Intel® Xeon® D1559        | 2.1 GHz (Burst)   1.5 GHz Clock   | 12 Cores  | cache 18MB   | 45W TDP                                    |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |                                 |         |           |         |                       |               |         |           |         |                       |                                 |         |           |         |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |               |         |           |         |                       |                                 |         |           |         |
| Intel® Xeon® D1539        | 2.2 GHz (Burst)   1.6 GHz Clock   | 8 Cores   | cache 12MB   | 35W TDP                                    |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |                                 |         |           |         |                       |               |         |           |         |                       |                                 |         |           |         |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |               |         |           |         |                       |                                 |         |           |         |
| Intel® Xeon® D1529        | 1.3 GHz Clock   | 4 Cores   | cache 6MB  | 20W TDP                                    |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |                                 |         |           |         |                       |               |         |           |         |                       |                                 |         |           |         |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |               |         |           |         |                       |                                 |         |           |         |
| Intel® Pentium™ D1519     | 2.1 GHz (Burst)   1.5 GHz Clock   | 4 Cores   | cache 6MB  | 25W TDP                                    |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |                                 |         |           |         |                       |               |         |           |         |                       |                                 |         |           |         |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |               |         |           |         |                       |                                 |         |           |         |
| DRAM                      | up to 3 SO-DIMM sockets for DDR4 memory modules up to 16 GByte each (48 GByte total) with 2400 MT/s   ECC and non-ECC supported   |   |  |  |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |                                 |         |           |         |                       |               |         |           |         |                       |                                 |         |           |         |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |               |         |           |         |                       |                                 |         |           |         |
| Chipset                   | Integrated in SoC   |   |  |  |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |                                 |         |           |         |                       |               |         |           |         |                       |                                 |         |           |         |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |               |         |           |         |                       |                                 |         |           |         |
| Ethernet                  | 1x Intel I210AT /IT Gigabit Ethernet Controller   2x 10GbE with KR interface support - the 10GbE PHY must be implemented on the carrier board   |   |  |  |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |                                 |         |           |         |                       |               |         |           |         |                       |                                 |         |           |         |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |               |         |           |         |                       |                                 |         |           |         |
| I/O Interfaces            | 24x PCIe Gen3   8x PCIe Gen2   4x USB 3.0   4x USB 2.0   2x SATA III (6Gb/s)   LPC   SPI   I²C bus (fast mode 400 kHz, multi-master)   2x UART  |   |  |  |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |                                 |         |           |         |                       |               |         |           |         |                       |                                 |         |           |         |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |               |         |           |         |                       |                                 |         |           |         |
| congatec Board Controller | Multi Stage Watchdog   non-volatile User Data Storage   Manufacturing and Board Information   Board Statistics   BIOS Setup Data Backup   I²C bus (fast mode, 400 kHz, multi-master)   Power Loss Control   |   |  |  |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |                                 |         |           |         |                       |               |         |           |         |                       |                                 |         |           |         |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |               |         |           |         |                       |                                 |         |           |         |
| Embedded BIOS Features    | OEM Logo   OEM CMOS Defaults   LCD Control   Display Auto Detection   Backlight Control   Flash Update   based on AMI Aptio UEFI  |   |  |  |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |                                 |         |           |         |                       |               |         |           |         |                       |                                 |         |           |         |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |               |         |           |         |                       |                                 |         |           |         |
| Security                  | Trusted Platform Module (TPM)<br>Hash and RSA algorithms   key lengths up to 2048 bits   real random number generator   |   |  |  |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |                                 |         |           |         |                       |               |         |           |         |                       |                                 |         |           |         |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |               |         |           |         |                       |                                 |         |           |         |
| Power Management          | ACPI 5.0 with battery support   |   |  |  |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |                                 |         |           |         |                       |               |         |           |         |                       |                                 |         |           |         |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |               |         |           |         |                       |                                 |         |           |         |
| Operating Systems         | <p><b>Windows 64 bit OS</b></p> <p>Microsoft® Windows Server 2016<br/>Microsoft® Windows Server 2012 R2<br/>Microsoft® Windows Server 2012<br/>Microsoft® Windows Server 2008 R2 SP1<br/>Microsoft® Windows 10 Enterprise<br/>Microsoft® Windows 8.1 64b<br/>Microsoft® Windows 7 64b</p>   | <p><b>Open Source OS &amp; Frameworks</b></p> <p>RHEL 6.6 &amp; 7.1<br/>SuSE 11 SP4 &amp; 12 SP1<br/>Fedora 22<br/>Ubuntu 14.10<br/>CentOS 6.6 &amp; 7.1<br/>FreeBSD<br/>Yocto v.2.0 Kernel 4.1</p> | <p><b>Real-Time OS</b></p> <p>Wind River VxWorks 7</p> | <p><b>Other</b></p> <p>VMware<br/>ESXi</p> |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |                                 |         |           |         |                       |               |         |           |         |                       |                                 |         |           |         |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |               |         |           |         |                       |                                 |         |           |         |
| Power Consumption         | see user's guide for full details   CMOS Battery Backup   |   |  |  |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |                                 |         |           |         |                       |               |         |           |         |                       |                                 |         |           |         |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |               |         |           |         |                       |                                 |         |           |         |
| Temperature               | Industrial: Operating: -40 to +85°C Storage: -40 to +85°C<br>Commercial: Operating: 0 to +60°C Storage: -40 to +85°C  |   |  |  |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |                                 |         |           |         |                       |               |         |           |         |                       |                                 |         |           |         |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |               |         |           |         |                       |                                 |         |           |         |
| Humidity                  | Operating: 10 - 90% r. H. non cond. Storage: 5 - 95% r. H. non cond.  |   |  |  |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |                                 |         |           |         |                       |               |         |           |         |                       |                                 |         |           |         |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |               |         |           |         |                       |                                 |         |           |         |
| Size                      | 95 x 125 mm (3.74" x 4.92")   |   |  |  |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |                                 |         |           |         |                       |               |         |           |         |                       |                                 |         |           |         |                    |                                 |          |            |         |                    |                                 |         |            |         |                    |               |         |           |         |                       |                                 |         |           |         |

# conga-B7XD | Block diagram



# conga-B7XD | Order Information

| Article                                      | PN       | Description   |
|--|----------|---|
| conga-B7XD/X-D1577                           | 047500   | COM Express Type 7 Basic module with Intel® Xeon® D1577 processor with 16 Cores, 1.3GHz up to 2.1GHz core frequency, 24MB Cache with Intel® Cache Allocation Technology and 2400 MT/s dual channel DDR4 memory interface for up to 48GB SODIMM memory. Features two 10GbE KR interface ports. 45W TDP, commercial temperature range.  |
| conga-B7XD/X-D1548                           | 047502   | COM Express Type 7 Basic module with Intel® Xeon® D1548 processor with 8 Cores, 2.0GHz up to 2.6GHz core frequency, 12MB Cache with Intel® Cache Allocation Technology and 2133 MT/s dual channel DDR4 memory interface for up to 48GB SODIMM memory. Features two 10GbE KR interface ports. 45W TDP, commercial temperature range.   |
| conga-B7XD/X-D1527                           | 047503   | COM Express Type 7 Basic module with Intel® Xeon® D1527 processor with 4 Cores, 2.2GHz up to 2.7GHz core frequency, 6MB Cache with Intel® Cache Allocation Technology and 2133 MT/s dual channel DDR4 memory interface for up to SODIMM 48GB memory. Features two 10GbE KR interface ports. 35W TDP, commercial temperature range.    |
| conga-B7XD/P-D1509                           | 047504   | COM Express Type 7 Basic module with Intel® Pentium™ D1509 processor with 2 Cores, 1.5GHz core frequency, 3MB Cache with Intel® Cache Allocation Technology and 2133 MT/s dual channel DDR4 memory interface for up to 48GB SODIMM memory. 19W TDP, commercial temperature range.   |
| conga-B7XD/P-D1508                           | 047505   | COM Express Type 7 Basic module with Intel® Pentium™ D1508 processor with 2 Cores, 2.2GHz up to 2.6GHz core frequency, 3MB Cache with Intel® Cache Allocation Technology and 2133 MT/s dual channel DDR4 memory interface for up to 48GB SODIMM memory. Features two 10GbE KR interface ports. 25W TDP, commercial temperature range. |
| conga-B7XD/i-X-D1559                         | 047520   | COM Express Type 7 Basic module with Intel® Xeon® D1559 processor with 12 Cores, 1.5GHz up to 2.1GHz core frequency, 18MB Cache with Intel® Cache Allocation Technology and 2133 MT/s dual channel DDR4 memory interface for up to 48GB SODIMM memory. Features two 10GbE KR interface ports. 45W TDP, industrial temperature range.  |
| conga-B7XD/i-X-D1539                         | 047521   | COM Express Type 7 Basic module with Intel® Xeon® D1539 processor with 8 Cores, 1.6GHz up to 2.2GHz core frequency, 12MB Cache with Intel® Cache Allocation Technology and 2133 MT/s dual channel DDR4 memory interface for up to 48GB SODIMM memory. Features two 10GbE KR interface ports. 35W TDP, industrial temperature range.   |
| conga-B7XD/i-X-D1529                         | 047522   | COM Express Type 7 Basic module with Intel® Xeon® D1529 processor with 4 Cores, 1.3GHz core frequency, 6MB Cache with Intel® Cache Allocation Technology and 2133 MT/s dual channel DDR4 memory interface for up to 48GB SODIMM memory. 20W TDP, industrial temperature range.  |
| conga-B7XD/i-P-D1519                         | 047523   | COM Express Type 7 Basic module with Intel® Pentium™ D1519 processor with 4 Cores, 1.5GHz up to 2.1GHz core frequency, 6MB Cache with Intel® Cache Allocation Technology and 2133 MT/s dual channel DDR4 memory interface for up to 48GB SODIMM memory. Features two 10GbE KR interface ports. 25W TDP, industrial temperature range. |
| conga-B7XD/CSA-HP-T                          | 047530   | Standard active cooling solution for high performance COM Express Type 7 module conga-B7XD with integrated heat pipes, 70mm radial 12V PWM fan and 30mm overall heat sink height. All standoff are with 2.7mm bore hole.  |
| conga-B7XD/CSA-HP-B                          | 047531   | Standard active cooling solution for high performance COM Express Type 7 module conga-B7XD with integrated heat pipes, 70mm radial 12V PWM fan and 30mm overall heat sink height. All standoffs are M2.5mm thread.  |
| conga-B7XD/HSP-VP-T                          | 047532   | Standard heatspreader for high performance COM Express Type 7 module conga-B7XD with integrated vapor chamber. All standoffs are with 2.7mm bore hole.  |
| conga-B7XD/HSP-VP-B                          | 047533   | Standard heatspreader for high performance COM Express Type 7 module conga-B7XD with integrated vapor chamber. All standoffs are M2.5mm thread.   |
| DDR4-SODIMM-2400 (4GB)                       | 068790   | DDR4 SODIMM memory module with 2400 MT/s and 4GB RAM  |
| DDR4-SODIMM-2400 (8GB)                       | 068791   | DDR4 SODIMM memory module with 2400 MT/s and 8GB RAM  |
| DDR4-SODIMM-2400 (16GB)                      | 068792   | DDR4 SODIMM memory module with 2400 MT/s and 16GB RAM   |
| <b>Accessories</b>                           |          |   |
| conga-X7/EVAL                                | 065420   | Evaluation Carrier Board for COM Express Type 7 modules with up to four 10GbE SFP+ fiber/copper ports implemented via Intel Cortina 10GbE Phy's. The carrier features an Aspeed AST2500 Board Management Controller (BMC).  |
| COM Express Connector AB, High Speed, Type 7 | 41500615 | COM Express Connector AB, High Speed (10Gbs), Type 7  |