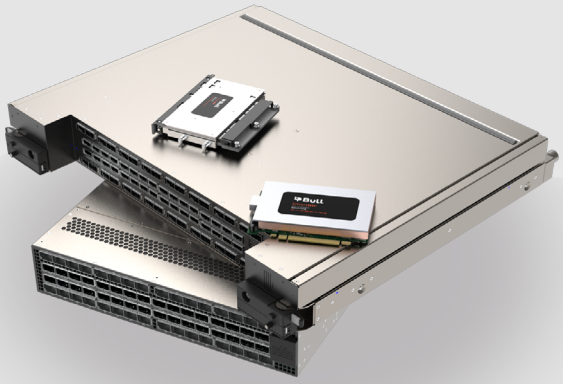
BullSequana eXascale Interconnect (BXI) V3

High-performance Networking and Interconnect for AI and HPC workloads



With the rapid rise of HPC and AI workloads, coupled with the advent of exascale computing, interconnect networks are coming under significant pressure. At this scale, optimising the network, the backbone of the system, becomes crucial to maximising overall performance.

The BullSequana eXascale Interconnect (BXI) V3 technology offers a game-changing solution, enhancing GPU utilisation and overall supercomputer performance by offloading tasks from the CPU and efficiently managing traffic.

As Europe's leading interconnect player and a founding member of the Ultra Ethernet Consortium (UEC), Bull provides a future-proof, sovereign solution tailored for AI and HPC workloads.

BXI V3: High-Performance, GPU-Agnostic Interconnect technology for AI and HPC

- Built on decades of HPC expertise and a strong foundation in AI, BXI has evolved into its third generation of interconnect technology
- Enhances GPU utilisation and overall system performance through efficient traffic management and CPU offloading
- Designed to optimise performance at scale for the most demanding AI and HPC workloads
- GPU-agnostic design, enabling seamless integration across heterogeneous accelerator environments
- Delivers a complete, end-to-end solution integrating hardware, software, and cabling
- Available in air-cooled and direct liquid cooling configurations, with multiple form factors to meet diverse deployment requirements
- Offers a European alternative combining proven technology, control, and long-term robustness

High bandwidth

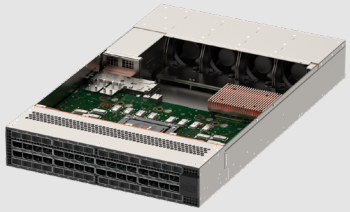
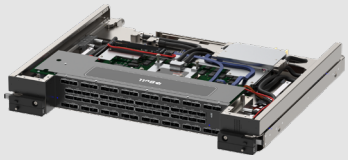
Ultra-low latency

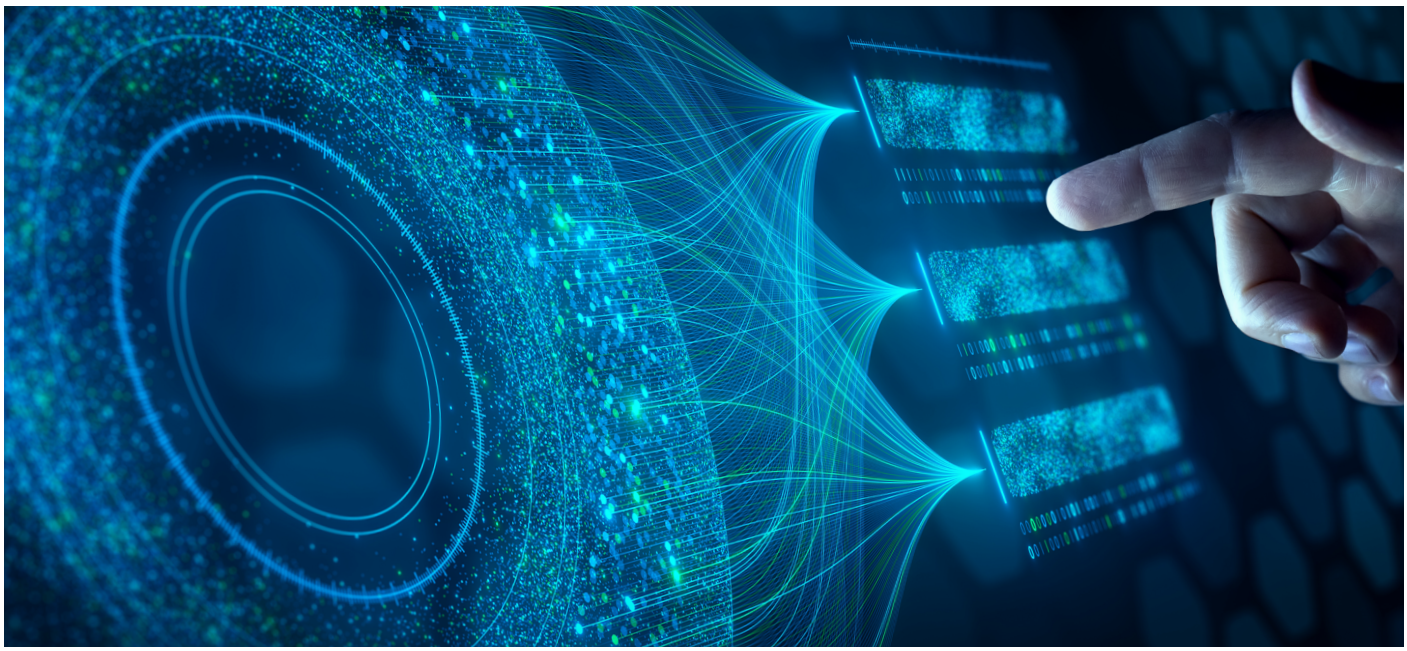
Congestion management

Guaranteed packet delivery and ordering

Ethernet interoperability

Smart CPU offloading

BXI V3 SWITCH		
Technology	• BXI V3 Air switch	• BXI V3 Direct Liquid Cooling switch
Ports	• 64 OSFP 800G ports – Supports both copper and optical cabling, up to 800G • Switch-to-switch: up to 800G; switch-to-NIC: 2 × 400G • Switch aggregated throughput: 51.2 Tb/s	
Power supply	• Dual hot plug 120V/240V AC C19 socket	• 55V DC Direct connection to rack busbar
Operating / Storage conditions	• Operating range: 0°C to 35°C, 8% to 80% humidity • Storage range: -40°C to 70°C, 5% to 95% humidity	• Operating range: 10°C to 45°C, 8% to 80% humidity • Storage range: 10°C to 45°C, 8% to 80% humidity
Cooling	• Air cooling, redundant hot plug fans	• 100% Direct Liquid Cooling (DLC) Dripless connectors
Form factor	• Standard 19'' rack 2U chassis	• BullSequana XH3000–XH3500 range 2U rack-mounted chassis
Management / Switch LEDs	• 1x RJ45/1Gbe - Out of band management port • Per port: link status LED • Fans, power supplies, unit ID and system LEDs	• Management via rack infrastructure sideband network • Per port: link status LED • Fans, unit ID and system LEDs
Regulation and safety	• Safety compliance: CE and cCSAus, BIS, UKCA • EMC compliance: CE, FCC • Environmental RoHS II & WEEE directives, REACH regulation	



BXI V3 Network Interface Card (NIC)	 BXI V3 NIC PCIe card	 BXI V3 NIC Mezzanine card
Network interface	• QSFP-DD / 1x 400 Gb/s	• QSFP-DD / 2x 400 Gb/s
Operating System	• Red Hat Enterprise Linux 9/10	
MTU size	• 9000 Bytes, 64GBytes max message size	
System Interface	• PCI Express gen 5.0 x16	
Input voltage	• 12VDC + 3.3VDC from PCI interface • 12V External power needed (4 pins PCIe)	• 12VDC + 3.3VDC from PCI interface
Operating / Storage conditions	• Operating range: 5°C to 38°C • Storage range: -40°C to 70°C • Humidity, operating and storage: 20% 60%, gradient 5%/h	• Operating range: 10°C to 45°C, humidity 8% to 80% non-condensing • Storage range: -10°C to 70°C, humidity 5% to 95% non-condensing
Cooling	• 100% Air cooled Passive heat sink	• 100% Direct Liquid Cooled Water-cooled cold plate
Form factor	• Full Height, Half Length (FHHL)	• OCP3 Large Form Factor (LFF+)
Server compatibility	• Standard PCI slot – Regular server	• BullSequana XH3000–XH3500
Management LED Indicators	• Link status indicator (Green) Traffic indicator (Yellow blinking)	• Link status indicator (Green) Traffic indicator (Yellow blinking)
Cabling	• Passive/Active copper and fiber	• Passive/Active copper
Regulation and safety	• Safety compliance: CE and cCSAus, BIS, UKCA • EMC compliance: CE, FCC • Environmental RoHS II and WEEE directives, REACH regulation	

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