

# ClearPath Forward® Dorado 4690

## Product information sheet

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### High-performance ClearPath® OS 2200 processing

- Increased high-performance ClearPath OS 2200 application processing and I/O throughput
- Advanced system availability with multiple levels of component redundancy
- Unmatched security delivered through integrated hardware and software design
- Fully compatible with existing OS 2200 application and data formats
- Flexible Pay-for-Use licensing
- Optional OS 2200 QProcessor platform for advanced system interoperability

ClearPath Forward® Dorado systems have long been known for their outstanding security, resiliency and scalability in processing the workloads of many organizations' core business operations. The ClearPath Forward Dorado 4690 system builds on this status with new levels of high-performance OS 2200 workload processing — paired with increased I/O throughput and advanced interoperability capabilities.

The ClearPath Forward Dorado 4690 is part of the latest generation of enterprise-class systems to support the OS 2200 operating system on Unisys Intel-based platforms. Significant increases in the OS 2200 application memory, single-image processing capacity and support for the latest high-speed storage devices are standard features of the advanced Dorado 4690 design.

Each Dorado 4690 **Processor Memory Module**, or PMM, provides an OS 2200 application with a single thread performance of 460 MIPS. Multiple OS 2200 applications run together in the OS 2200 partition for a combined single-image performance of up to 2,000 MIPS. To support the

partition, separate Intel-based **I/O Storage Modules**, or ISMs can be combined to deliver over 932,000 I/Os per second.

The Dorado 4690 is configurable with two independent OS 2200 partitions, each capable of full processor and I/O performance. A two-partition system effectively doubles the performance of a Dorado 4690, providing up to 4,000 MIPS and just over 1.8 million I/Os per second, all in a single standard cabinet.

These systems are designed with the highest levels of resiliency and availability. Each primary system component includes high-availability features for power, cooling and internal disks. Overall system resiliency is maximized by including redundant OS 2200 processor modules, I/O subsystems and infrastructure components.

The Dorado 4690 system is licensed following the Unisys Pay-for-Use business model and utilizes our advanced metering technology. Metering technology enables you to instantly take advantage of the Dorado 4690 full processing capacity while only being charged for the resources used. This licensing model allows for reduced capital investment and a better match of revenue to expenses.

As part of the ClearPath Forward family, the Dorado 4690 system provides a unified solution where Unisys develops, integrates, tests and supports all components.

### Flexible and secure architecture

The ClearPath Forward Dorado 4690 system architecture utilizes multiple Unisys Intel-based components integrated through a high-speed, private LAN interconnect. This modular design provides inherent redundancy of all components

and allows scalable configurations of the I/O subsystem.

The Processor Memory Module executes the ClearPath OS 2200 instruction set and includes a full 32GW of memory. Multiple high-speed Ethernet connections are maintained within the PMM to provide OS 2200 network connectivity. A full range of 1Gb and 10/25Gb NIC options allow the Dorado 4690 to be part of a high-speed client network.

Two PMMs are included in every Dorado 4690 OS 2200 partition. As one PMM actively processes the OS 2200 workload, the second PMM acts as a warm standby. These two PMM designs allow for a quick failover of the OS 2200 processing environment and improve system availability during scheduled maintenance.

Each of the Dorado 4690 partitions includes two ISMs. Each ISM supports multiple high-speed I/O connections to a variety of storage types. The latest card options for dual or quad port 32Gb Fibre Channel and a dual port 32Gb FICON connection are available for the ISM.

The two ISMs may be configured with a connection to a shared storage device. This redundancy helps balance I/O flow and ensures that an OS 2200 workload will continue even if an ISM is unavailable. Two more ISMs may be added to any partition for additional storage connections, such as I/O capacity and redundancy.

Unique Dorado firmware has been developed for the Dorado 4690 PMM and ISM modules to provide compatibility with previous Dorado architectures. The existing OS 2200 application code will run without re-compiling or relinking. Supported storage devices may be connected to the Dorado 4690 I/O subsystem, and data formats will be maintained. The Dorado 4690 systems demonstrate the Unisys ClearPath commitment to unparalleled security. Multi-layered security is inherent to the architecture, providing protection that helps you maintain data integrity, reduce operational costs and minimize the risk of lost revenue, regulatory sanctions or a diminished reputation.

## ClearPath OS 2200 integrated stack

The ClearPath Forward Dorado 4690 system is an integrated stack consisting of hardware, software, middleware and applications optimized

for reliability, security, scalability and performance.

A set of powerful Enterprise Integration capabilities allows existing ClearPath OS 2200 applications and data to expose new services and enable the Dorado 4690 system to participate in digital transformation initiatives. In addition, a rich set of industry-standard middleware technologies are available for integrating ClearPath OS 2200 data and transactions — including JDBC, ODBC, .NET, Java and Open DTP.

The **ClearPath OS 2200 release 20.0** is the minimum release level required to support the ClearPath Forward Dorado 4690 system. Each OS 2200 release comprises more than 100 integrated system software products, delivering the operating system, databases, transaction management, development and many other software elements to support enterprise-class solutions.

## ClearPath Forward Dorado OS 2200 QProcessor 6.0 platform

A new implementation of the OS 2200 QProcessor is available exclusively for this generation of ClearPath Forward Dorado 4690 systems.

The **ClearPath Forward Dorado OS 2200 QProcessor 6.0** is based on the latest OS 2200 QProcessor 6.0 firmware combined with Unisys-supplied hardware to provide a complete processing environment.

This infrastructure provides a secure extension to the OS 2200 environment to support connections to other hosts via IBM® MQ message queueing architecture. Interoperability between the Dorado 4690 system and the QProcessor 6.0 infrastructure is maintained through private 10/25Gb optical Ethernet connections.

The complete OS 2200 QProcessor 6.0 Infrastructure includes fully redundant dedicated Ethernet switches and cabling. Multiple QProcessor instances can be deployed in a High Availability cluster to perform failure detection and provide automatic failover of the OS 2200 MQ resources.

The OS 2200 QProcessor is integrated with the ClearPath OS 2200 and enables OS 2200 applications (TIP/HVTIP, Open DTP, or batch) to

take advantage of the high levels of performance, reliability and security of the OS 2200 operating environment.

## ClearPath OS 2200 multi-host clustering support

When used with the soon-to-be-released **Unisys eXtended Processing Complex Locking 6.0 (XPC-L-6)** platform, the ClearPath Forward Dorado 4690 can work with other qualified Dorado systems in a multi-host cluster to provide superior business continuity and an expanded scale-out processing capacity.

The ClearPath OS 2200 XPC solution protects the integrity of data being updated in a multi-host environment. As part of a cluster, up to six Dorado systems can operate against a shared database, even if they access the same record.

The combination of the Dorado 4690 system high-availability features and Unisys eXtended Transaction Capacity software provides virtually non-stop OS 2200 application support. Fully redundant configurations and extensive scale-out processing capacity provide a transaction processing resource with availability measured in years.

## Software interdependencies

The ClearPath Forward Dorado 4690 systems require the following software products:

- **ClearPath OS 2200 Release 20.0 or later**
- **ClearPath OS 2200 QProcessor supports the following software levels:**
  - WebSphere MQ for ClearPath OS 2200 version 9R1.1 or later
  - Interconnect 1R4D or later
  - CIFS 9R1 or later

## Maximizing your ClearPath Forward Dorado investment

Unisys recognizes that you are looking for a complete end-to-end solution to critical IT needs. For ClearPath Forward Dorado systems, Unisys offers the sole source of integration, support, education, and services.

Additional **ClearPath Forward Services** maximize your investment in ClearPath Forward systems, applications, tools and skills. These services help you implement our solutions, increase the value of your core business applications, and simplify the operation and administration of your ClearPath Forward installation.

# Technical specifications

## ClearPath Forward Dorado 4690 system

Form Factor	<b>Cabinet</b>	42U rack
	<b>OS 2200 Partitions</b>	Single or Dual Partition option
MIPS Performance Level*	<b>Single Thread Processor MIPS</b>	460
	<b>Pay-for-Use Business Model</b>	Dorado 4690 (2,000 MIPS Ceiling) per OS 2200 Partition
Processor Memory Module (PMM)	<b>Quantity (2) Processor Memory Module (PMM) One Active, One Standby per partition</b>	
	<b>Sockets, Processors, Chipset</b>	(2) Intel® Xeon® processor Platinum family - 8462Y - 2.8GHz, 25M LLC, 10.4GT/s UPI, HT, Turbo, 32 Cores, 300W
	<b>Memory</b>	A total of 256GB of physical memory is as follows: <ul style="list-style-type: none"> <li>• (8) 16GB RDIMM, Low Volt, 2R, x4</li> <li>• 4800 MT RDIMMs</li> <li>• Expansion (16) 16GB RDIMM, Low Volt, 2R, x4</li> </ul>
	<b>Internal Storage</b>	(3) 1.6TB SSD Serial-Attach SCSI 6Gbps 2.5in Hotplug Hard Drive
	<b>User I/O ports</b>	8 PCIe slots: <ul style="list-style-type: none"> <li>• Two x8 full-length, full-height (Gen4)</li> <li>• Four x8 full-length, full-height (Gen5)</li> <li>• Two x16 half-length, low-profile (Gen4)</li> </ul>
I/O Storage Module (ISM)	<b>Quantity (2) I/O Storage Module (ISM): two additional ISMs may be added per partition.</b>	
	<b>Sockets, Processors, Chipset</b>	(2) Intel® Xeon® processor Platinum family - 8462Y - 2.8GHz, 25M LLC, 10.4GT/s UPI, HT, Turbo, 32 Cores, 300W
	<b>Memory</b>	128GB; (8) 16GB, Low Volt, Dual Rank x4, 2666MT RDIMMs
	<b>Internal Storage</b>	(3) 1.6TB SSD Serial-Attach SCSI 6Gbps 2.5in Hotplug Hard Drive

	<b>User I/O Ports</b>	8 PCIe slots: <ul style="list-style-type: none"> <li>Two x8 full-length, full-height (Gen4)</li> <li>Four x8 full-length, full-height (Gen5)</li> <li>Two x16 half-length, low-profile (Gen4)</li> </ul>
<b>Common Attributes - PMM and ISM</b>	<b>Form Factor</b>	2U
	<b>Internal Interconnect</b>	2 x Intel QuickPath Interconnect (UPI) links
	<b>RAID Controller</b>	PERC H965i Integrated RAID Controller, 8GB NV Cache
	<b>Ext Drive Bay(s)</b>	DVD+/-RW, SATA, External
	<b>Power</b>	Dual, Hot-plug, Redundant Power Supply (1+1), 1400W
	<b>Availability and Maintainability Features</b>	Hot-plug drive bays, Hot-plug redundant fan ECC memory, Interactive LCD screen Extended thermal support ENERGY STAR® compliant, extended power range
<b>Operations Server</b>	<b>Quantity (2) Operations Servers (OPS) per system</b>	
	<b>Form Factor</b>	1U
	<b>Sockets, Processors, Chipset</b>	Intel Xeon E-2336 2.9GHz, 12M Cache, 6C/12T, Turbo (65W), 3200MT/s
	<b>Memory</b>	16GB of memory as follows: <ul style="list-style-type: none"> <li>(2) 8GB UDIMM (with ECC)</li> <li>3200MT/s UDIMMs</li> </ul>
	<b>Internal Storage</b>	(2) 1.92TB SSD SATA Mix Use 6Gbps 512n 2.5in Hot-plug AG Drive
	<b>RAID Controller</b>	PERC H355 RAID Controller - RAID 1

**\*Note:** Performance information based on Unisys benchmarks under standard conditions

## ClearPath Forward Dorado OS 2200 QProcessor 6.0

<b>QProcessor 6.0 Platform</b>	<b>Sockets, Processors, Chipset</b>	2) Intel Xeon processor Platinum family – 8462Y+ 2.8GHz, 25M LLC, 10.4GT/s UPI, HT, Turbo, 32 Cores, 300W
	<b>Memory</b>	128GB of physical memory as follows: <ul style="list-style-type: none"> <li>• (8) 16GB RDIMM, Low Volt, 2R, x4</li> <li>• 4800 MT RDIMMs</li> </ul>
	<b>Internal Storage</b>	(3) 1.6TB SSD Serial-Attach SCSI 6Gbps 2.5in Hotplug Hard Drive
	<b>Dedicated Network Connections</b>	<ul style="list-style-type: none"> <li>• Broadcom NetXtreme BCM5720 2-port 1Gbe</li> <li>• Intel X710-T4L 4x10Gbe OCP</li> </ul>
	<b>External Storage Connections</b>	(2) dual port FC HBA (note: Requires SAN - No direct attachment)

## Common Solution Attributes

<b>Environmental Specifications</b>	<b>Continuous Operation (PMM, ISM, OPS)</b>	10°C to 30°C at 10% to 80% relative humidity with 21°C maximum dew point (maximum wet bulb temperature). De-rate maximum allowable dry bulb temperature at 1°C per 300m above 900m.
	<b>Storage (PMM, ISM, OPS)</b>	-40°C to 65°C (-40°F to 149°F) with a maximum temperature gradation of 20°C per hour at 5% to 95% relative humidity with 27°C (80.6°F) maximum dew point.
	<b>Expanded Operation</b>	<p>System performance may be impacted when operating in the expanded temperature range, and ambient temperature warnings may be reported on the LCD and in the System Event Log.</p> <p><b>Expanded operation restrictions:</b></p> <ul style="list-style-type: none"> <li>• No cold startup below 10°C</li> <li>• Maximum altitude for the operating temperature must be 3050m (10,000 ft)</li> </ul>
<b>Maximum Heat Dissipation</b>		<p>Single Partition, 2 PMM, 4 ISM, 2 OPS: 23170 BTU/hr. (max)</p> <p>Dual Partition, 4 PMM, 8 ISM, 2 OPS: 41586 BTU/hr. (max)</p>

<b>Cabinet</b>	<b>External Metrics Per Cabinet (doors closed)</b>	US: H (78.39 in), W (23.63 in), D (47.25 in) / Metric: H (199.1 cm), W (60.0 cm), D (120.0 cm)
	<b>Chassis Weight (max)</b>	Single Partition, 2 PMM, 4 ISM: 1006 lb. Dual Partition, 4 PMM, 8 ISM: 1486 lb.
<b>Power</b>	<b>Operational Voltage</b>	200-240VAC
	<b>Current Consumption</b>	PMM: 4.77-4.33 A ISM: 4.37-3.97 A OPS: 0.78-0.71 A MLAN Switch: 1.06 – 0.96 A Storage Network Switch: 1.24 – 1.13 A Keyboard/LED Drawer: 1.5 A KVM Switch: 0.3 A Operations Workstation: 4.2 A Operations LCD Monitor: 1.2 A QProcessor: 4.77 – 4.33 A QProcessor Ethernet Switch: 0.24 A
	<b>Frequency</b>	50-60Hz
<b>Cooling</b>	Capability to operate at excursion-based temperatures beyond the industry standard of 35°C (95°F). N+1 fan redundancy allows continuous operation with one fan failure in the unit.	
<b>Altitude</b>	<b>Operating (PMM, ISM, OPS)</b>	-15 m to 3,048 m (-50 ft to 10,000 ft) Note: Inlet temperature must be derated at altitudes above 950 m (3,117 ft) at a rate of 1° C per 300 m (1° F per 547 ft).
	<b>Storage &amp; Shipping (PMM, ISM, OPS)</b>	-15 m to 10,668 m (-50 ft to 35,000 ft)
<b>Airborne Contaminant Level</b>	Class G1 or lower as defined by ISA-S71.04-1985	
<b>Thermal and Acoustics</b>	Thermal management delivers high performance for the right amount of cooling to components at the lowest fan speeds across a wide range of ambient temperatures from 10°C to 30°C (50°F to 86°F) and to extended ambient temperature	

	ranges.
<b>Remote Management</b>	The embedded Remote Management interface provides server-level management that monitors, reports and controls power consumption at the processor, memory and system level.
<b>System Management</b>	IPMI 2.0 compliant
<b>Industry Compliance</b>	Compliant with all relevant industry certifications and guidelines, including 80 PLUS, Climate Savers and ENERGY STAR.

**Note:** *These specifications do not provide a viable substitute for a detailed configuration, environmental and infrastructure planning study.*

**For more information on the ClearPath Forward Dorado 4690, visit [unisys.com](https://unisys.com) or email us at [ClearPathForward@unisys.com](mailto:ClearPathForward@unisys.com).**



[unisys.com](https://unisys.com)

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