



Unisys ClearPath Forward® Dorado 6590

Product Information Sheet

High-performance ClearPath OS 2200 processing

- Increased high-performance ClearPath® OS 2200 application processing and I/O throughput
- Unmatched security delivered through integrated hardware and software design
- Advanced system availability with multiple levels of component redundancy
- Fully compatible with existing OS 2200 applications 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 that make up many organizations' core business operations. The ClearPath Forward Dorado 6590 system builds on this reputation with new levels of high-performance OS 2200 workload processing paired with increased I/O throughput and advanced interoperability capabilities.

The ClearPath Forward Dorado 6590 is part of the latest generation of enterprise-class systems to support the OS 2200 operating system on Unisys Intel® 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 6590 design.

Each Dorado 6590 processor memory module, or PMM, provides an OS 2200 application with a single-thread performance of 550 MIPS. Multiple OS 2200 applications run together in the OS 2200 partition for a combined single-

image performance of up to 5,000 MIPS. To support the partition, separate Intel-based I/O storage modules ISMs can be combined to deliver over 590,000 I/Os per second.

The Dorado 6590 can be configured 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 6500, providing up to 10,000 MIPS and nearly 1.2 million I/Os per second, all in a single standard cabinet.

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

The Dorado 6590 system is licensed following the Unisys pay-for-use business model and uses our advanced metering technology. Metering technology enables you to instantly take advantage of the Dorado 6590 full processing capacity while only being charged for the resources used. This licensing allows a reduced capital investment and a better match of revenue to expenses.

As part of the ClearPath Forward family, the Dorado 6590 system provides a completely unified solution where all components are developed, integrated, tested and supported by Unisys.

Flexible and secure architecture

The ClearPath Forward Dorado 6590 system architecture uses 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 24GW of memory. Multiple high-speed Ethernet connections are maintained within the PMM to provide OS 2200 network connectivity. A full range of 1Gb and 10Gb NICs are available, including a 40Gb NIC card to allow the Dorado 6590 to be part of a high-speed client network.

Two PMMs are included in every Dorado 6590 OS 2200 partition. As one PMM is actively processing the OS 2200 workload, the second PMM acts as a warm standby. This two-PMM design allows a quick failover of the OS 2200 processing environment and improves system availability during scheduled maintenance.

Each of the Dorado 6590 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-port 32Gb or quad-port 16Gb Fibre Channel and a new dual-port 16Gb FICON connection are available for the ISM.

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

Unique Dorado firmware has been developed for the Dorado 6500 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 can be connected to the Dorado 6590 I/O subsystem, and data formats will be maintained.

The Dorado 6590 system demonstrates 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 6590 system delivers 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 6590 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 18.0 is the minimum release level required to support the ClearPath Forward Dorado 6590 system. Each OS 2200 release is comprised of 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 OS 2200 multi-host clustering support

When used with the Unisys eXtended Processing Complex Locking 5.0 (XPC-L-5) platform, the ClearPath Forward Dorado 6590 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 all operate against a shared database even accessing the same record.

The combination of the Dorado 6590 system's high-availability features and Unisys eXtended Transaction Capacity software provides virtually nonstop OS 2200 application support. Fully redundant configurations and extensive scale-out processing capacity provide a transaction processing resource with availability measured in years.

ClearPath Forward Dorado OS 2200 QProcessor 5.0 platform

A new implementation of the ClearPath OS 2200 QProcessor is available exclusively for this generation of ClearPath Forward Dorado 6590 systems.

The ClearPath Forward Dorado OS 2200 QProcessor 5.0 is based on the latest OS 2200 QProcessor 5.0 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 queuing architecture. Interoperability between the Dorado 6590 system and the QProcessor 5.0 infrastructure is maintained through private 10Gb optical Ethernet connections.

The complete Dorado OS 2200 QProcessor 5.0 hardware 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.

Software interdependencies

The ClearPath Forward Dorado 6590 system requires the following software products:

- ClearPath OS 2200 Release 18.0 or later
- ClearPath OS 2200 QProcessor supports the following software levels:
 - WebSphere MQ for ClearPath OS 2200= Version 9.0 or later
 - Interconnect 1R4C.1 or later
 - CIFS 9R1 or later

Maximizing your ClearPath Forward Dorado investment

Unisys recognizes that you need a complete end-to-end solution to satisfy critical IT needs. For ClearPath Forward Dorado systems, Unisys offers a single source for integration, support, education and services.

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

Technical specifications

Key Hardware Solution Features		ClearPath Forward Dorado 6590 System	
Form Factor	Cabinet	42U rack	
	OS 2200 partitions	Single or dual partition option	
MIPS performance level (see note 1 below)	Single-thread processor MIPS	550	
	Pay-for-use business model	Dorado 6590 (100-3,500 MIPS/month with 5,000 MIPS Ceiling) per OS 2200 Partition	
Processor memory module (PMM)		Quantity (2) PMMs (one active, one standby) per partition	
	Sockets/processors/ chipset	(2) / (2) Intel Xeon® processor Gold family - 6154 3.0GHz, 25M LLC, 10.4GT/s UPI, HT, Turbo, 18 Cores, 160W	
	Memory	384GB; (12) 32GB, Low Volt, Dual Rank x4, 2666MT RDIMMs (with memory mirroring)	
	Internal storage	(8) 300GB 15K RPM 2.5" SAS 12Gbps Hot-plug (note: no user internal storage) RAID 10 for H730 controller	
	User I/O ports	24 communication ports (max) per partition	
I/O storage module (ISM)		Quantity (2) ISMs Two additional ISMs can be purchased per partition	
	Sockets/processors / chipset	(2) / (2) Intel Xeon processor Gold family - 6154 3.0GHz, 25M LLC, 10.4GT/s UPI, HT, Turbo, 18 Cores, 160W	
	Memory	128GB; (4) 32GB, Low Volt, Dual Rank x4, 2666MT RDIMMs	
	Internal storage	(6) 300GB, 15K RPM, 2.5" SAS, 12Gbps Hot-plug (note: no user internal storage) RAID 10 for H730 Controller	
	User I/O ports	28 storage ports (max) per ISM	
		Common Attributes – PMM and ISM	
	Form Factor	2U	
	Internal Interconnect	2 x Intel QuickPath Interconnect (UPI) links	
	RAID Controller	PERC H730P Integrated RAID Controller, 2GB NV Cache	
	External drive bay(s)	DVD+/-RW, SATA, Internal	
Power	Dual, Hot-plug, Redundant Power Supply (1+1), 1100W		
Availability and maintainability features	Hot-plug drive bays Hot-plug redundant fans ECC memory Interactive LCD screen Extended thermal support ENERGY STAR® compliant, extended power range		
Note 1: Performance information based on Unisys benchmarks under standard conditions.			

Operations Server	(2) Operations Servers (OPS) per system	
	Form Factor	1U
	Sockets / Processors	(1) / (1) Intel Xeon E-2136 processor, 6 cores/12 thread, 3.3GHz, HT, Turbo, 80W
	Memory	16GB; (2) 8GB, UDIMM (with ECC)
	Internal Storage	(2) 600GB, 10K RPM, 2.5" SAS, 12Gbps Hot-plug (Note: no user internal storage)
	RAID Controller	PERC H330 RAID Controller - RAID 1
Power	Dual Hot-plug Redundant Power Supply (1+1), 350W	

Key Hardware Solution Features		ClearPath Forward Dorado OS 2200 QProcessor 5.0
QProcessor 5.0 Platform	Sockets / Processors / Chipset	(2) / (2) Intel Xeon processor gold family - 6154 3.0GHz, 25M LLC, 10.4GT/s UPI, HT, Turbo, 18 Cores, 160W
	Memory	128GB; (4) 32GB, Low Volt, Dual Rank x4, 2666MT RDIMMs
	Internal Storage	(6) 300GB, 15K RPM, 2.5" SAS, 12Gbps Hot-plug (note: no user internal storage) RAID 10 for H730 Controller
	Dedicated Network Connections	(2) quad-port 10Gb optical fiber NIC (X710)(1) quad-port copper NIC (i350)
	External Storage Connections	(2) dual-port FC HBA (note: requires SAN - no direct attachment)

Common Solution Attributes		
Environmental Specifications (temperature, humidity, altitude derating)	Continuous Operation (PMM, ISM, OPS)	10°C to 30°C (50°F to 86°F) at 10% to 80% relative humidity with 26°C (78. 8°F) maximum dew point (maximum wet bulb temperature). Derate maximum allowable dry bulb temperature at 1° C per 300 m above 950m (1°F per 547 ft above 3117 ft).
	Storage (PMM, ISM, OPS)	-40°C to 65°C (-40°F to 149°F) with a maximum temperature gradation of 20°C per hour at 10% to 95% relative humidity at a maximum wet bulb temperature of 33°C (91°F); the atmosphere must be condensing at all times.
	Expanded Operation	When operating in the expanded temperature range, system performance may be impacted, and ambient temperature warnings may be reported on the LCD and in the system event log. Expanded operation restrictions: <ul style="list-style-type: none"> • No cold startup below 10°C • Maximum altitude for the operating temperature must be 3050m (10,000 ft)
Maximum Heat Dissipation		Single partition, 2 PMM, 4 ISM, 2 OPS: 22,762 BTU/hr. Dual partition, 4 PMM, 8 ISM, 2 OPS: 41,870 BTU/hr.
Cabinet	External Metrics Per Cabinet	US: H (78.39 in), W (23.62 in), D (47.25 in) Metric: H (199.1 cm), W (60.0 cm), D (120.0 cm)
	Chassis Weight (max)	Single Partition, 2 PMM, 4 ISM, 2 OPS: 1101 lbs. (499.42 kgs) Dual Partition, 4 PMM, 8 ISM, 2 OPS: 1449 lbs. (657.27 kgs)
	Supply Voltage	100-240VAC

Common Solution Attributes		
Power	Current Consumption	PMM / ISM / 12A-6.5A, OPS: 4.8A-2.4A@100VAC-240VAC Network Switch / KVM / LCD Monitor: 1.4A@100VAC / 0.3A@100VAC / 1.5A@100VAC
	Frequency	50-60Hz
Cooling		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.
Altitude	Operating / Storage (PMM, ISM, OPS)	-16m to 3,048m (-50 ft to 10,000 ft) / -16m to 10,600m (-50 ft to 35,000 ft)
Airborne Contaminant Level		Class G1 or lower as defined by ISA-S71. 04-1985
Thermal and Acoustics		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.
Remote Management		The embedded remote management interface provides server-level management that monitors, reports and controls power consumption at the processor, memory and system level.
System Management		IPMI 2.0 compliant
Industry Compliance		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 any of the products discussed in this document, visit www.unisys.com/clearpath



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