

ClearPath Forward® Libra 4581 / 4591

Product Information Sheet



ClearPath Forward Libra 4581 / 4591 Mid-Range Performance ClearPath MCP Processing

Unisys is committed to delivering ClearPath® MCP systems that are designed to meet the needs of our clients with mid-range, essential business workloads. The ClearPath Forward® Libra 4581 and Libra 4591 systems deliver on this commitment.

Advances in the main processing capacity is matched by a high performance I/O subsystem to support even the most demanding transaction processing environment.

The Libra 4501 systems are designed and built with the highest levels of system resiliency and availability in mind. Each of the primary system components maintain internal resiliency characteristics for power, cooling, local disks, and memory.

The overall Libra 4581 / 4591 system resiliency is further enhanced by the inclusion of redundant processors, I/O subsystems, and supporting infrastructure components.

The Libra 4581 and 4591 systems provide a complete unified solution where all components are designed, developed, integrated, tested, and supported by Unisys.

Mid-Range Performance

The Libra 4501 systems are built to deliver mid-range performance for ClearPath MCP workloads. These ClearPath Forward Libra 4581 and 4591 systems are the latest generation of enterprise-class systems to implement the MCP operating system on Unisys Intel platforms. The main Processing Memory Module, or PMM, provides a single thread performance of 550 MIPS and a single MCP image up to 2,200 MIPS. Separate Intel based I/O Service Modules, or ISMs, can be combined to deliver over 90,000 I/Os per second.

Two models of the Libra 4501 are available to provide flexible licensing options. The **Libra 4591** system is licensed following the Unisys **Pay-for-Use** business model and utilizes our advanced metering technology.

Metering technology lets clients instantly take advantage of the Libra 4591's full processing capacity while only being charged for the resources used. The Pay-for-Use model allows a reduced capital investment with a better match of revenues to expenses.

The traditional business model offered with **Libra 4581** systems provides for software licensing based on a fixed performance level. Additional flexibility is offered with Capacity on Demand options for temporary workload increases. COD short term and long term business continuance capabilities provide the flexibility to quickly adapt to unforeseen business requirements.

Secure Architecture

The ClearPath Forward Libra 4501 system architecture utilizes multiple integrated Unisys Intel-based components. This modular design provides redundancy of all components and allows the I/O subsystem to scale. The **Processor Memory Module**, or PMM, executes the MCP instruction set, and includes 6 GWords of MCP memory.

Two PMMs are configured in every Libra 4501 MCP system. As one PMM is actively processing the MCP workload, the second PMM acts as a warm stand-by. This two PMM design allows a quick failover of the MCP processing environment and improves system availability during scheduled maintenance.

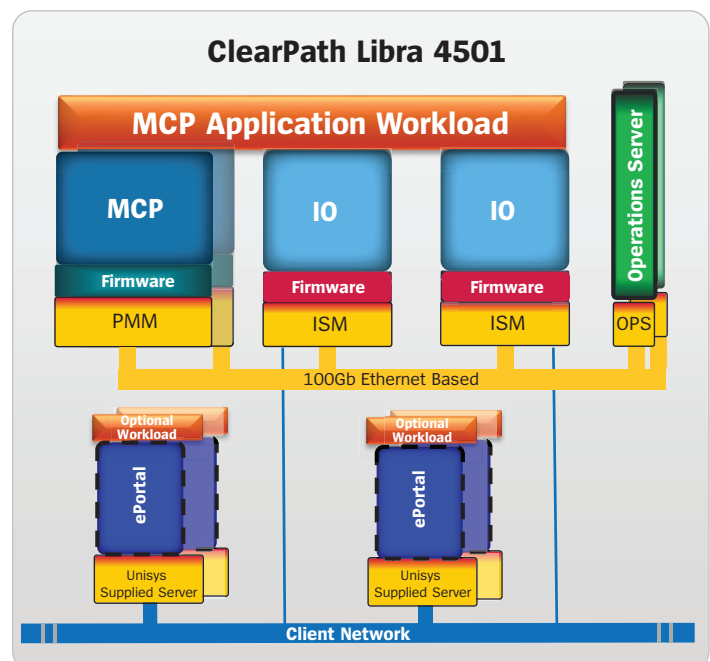
The Libra 4501 system also includes two **I/O Service Modules**, or ISMs. Each ISM supports multiple high-speed I/O interfaces to a variety of storage types and for network connections. The latest storage card options supported in the ISM include quad-port 32Gb Fibre connections.

Support of a 40Gb network interface card allows the Libra 4501 to be part of a high-speed client network, and a full range of copper or optical 1Gb and 10Gb NICs are available.

Each of the two ISMs may be configured with a connection to a shared storage device. This redundancy ensures balanced I/O flow and insures that MCP workloads will continue even if one ISM is unavailable.

Just like prior systems, existing MCP application code will run without re-compiling. The firmware for the Libra 4501 PMM and ISM modules provides compatibility with previous Libra architectures. Supported storage devices may be connected to the new Libra I/O subsystem and existing data formats will be maintained.

The Libra 4581 and Libra 4591 systems continue the Libra family of Unisys ClearPath System's commitment to unparalleled security. As with previous systems, 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 MCP Integrated Stack

The Libra 4581 and 4591 systems deliver an integrated stack consisting of hardware, software, middleware and applications optimized for reliability, resiliency, security, scalability and performance. Powerful software capabilities allow existing ClearPath MCP applications and data to participate in or build new SOA services. In addition, a rich set of industry-standard middleware technologies are available for integrating ClearPath MCP data and transactions – including JDBC, ODBC, .NET, Java, Open DTP and web services.

The ClearPath MCP release 18.0 is the minimum release level required to support the ClearPath Forward Libra 4581 and 4591 systems. Each MCP 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.

Processing Capabilities

The ClearPath Forward Libra 4581 and Libra 4591 systems deliver not only all of the traditional attributes you expect in Libra systems, but also allow many new business capabilities for extending the role and value of MCP in your IT infrastructure.

Software Interdependencies

The ClearPath Forward Libra 4581 and 4591 systems require the following minimum software level:

- ClearPath MCP Release 18.0 or later

Maximizing Your Libra Investment

Unisys recognizes that many clients are looking for a complete end-to-end solution to their critical IT needs. For ClearPath Forward Libra systems, Unisys offers a single source for integration, support, education, and services.

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 Libra 4581 / 4591 System	
Form Factor	<i>Cabinet</i>	42U rack
MIPS Performance Level (See Note 1 below)	<i>Single Thread Processor MIPS</i>	550
	<i>Traditional Business Model</i>	Libra 4581 (50-2,200 MIPS) per MCP Partition
	<i>Pay-for-Use Business Model</i>	Libra 4591 (20-1540 MIPS/month with 2,200 MIPS Ceiling)
Processor Memory Module (PMM), I/O Storage Module (ISM)		Unisys ES3560R G6 - Quantity (2) Processor Memory Module (PMM) One Active, One Standby
	<i>Sockets / Processors / Chipset</i>	(2) / (2) Intel® Xeon Gold 6154, 18C, 3.0 GHz, 24.75 MB Cache, DDR4 Up To 2666 MHz, 200W Td
	<i>Memory</i>	384GB Memory (fully mirrored); (24) 32GB, Low Volt, Dual Rank x4, 2666MT/s RDIMMs
	<i>Internal Storage</i>	(4) 300GB 15K RPM 2.5" SAS 12Gbps Hot-plug (note: no user internal storage) RAID 10 for H730P Controller
		Unisys ES3560R G6 - Quantity (2) I/O Service Module (ISM)
	<i>Sockets / Processors / Chipset</i>	(2) / (2) Intel® Xeon Gold 6154, 18C, 3.0 GHz, 24.75 MB Cache, DDR4 Up To 2666 MHz, 200W Td
	<i>Memory</i>	192GB Useable Memory (fully mirrored); (12) 32GB, Low Volt, Dual Rank x4, 2666MT/s RDIMMs
	<i>Internal Storage</i>	(4) 300GB, 15K RPM, 2.5" SAS, 12Gbps Hot-plug (note: no user internal storage) RAID 10 for H730P Controller
		Common Attributes – PMM and ISM
	<i>Form Factor</i>	2U
	<i>Internal Interconnect</i>	3 x Intel Ultra Path Interconnect (UPI) links; 10.4 GT/s
	<i>RAID Controller</i>	PERC H730P Integrated RAID Controller, 2GB NV Cache, Mini card
	<i>Power</i>	Dual, Hot-plug, Redundant Power Supply (1+1), 1100W
	<i>Availability and Maintainability Features</i>	Hot-plug drive bays; Hot-plug redundant fan; Interactive LCD screen; Extended thermal support; Extended power range
Operations Server		Unisys 3520R G6 - Quantity (2) Operations Servers (OPS)
	<i>Form Factor</i>	1U
	<i>Sockets / Processors</i>	(1) / (1) Intel® Xeon® processor E-2136, 3.3GHz, 6C (80W)
	<i>Memory</i>	16GB; (2) 8GB, DDR4 UDIMMs
	<i>Internal Storage</i>	(6) 600GB, 10K RPM, 2.5" SAS, 12Gbps Hot-plug (Note: no user internal storage)
	<i>RAID Controller</i>	PERC H330 RAID Controller - RAID 10
	<i>Power</i>	Dual Hot-plug Redundant Power Supply (1+1), 350W

Note 1: Performance information based on Unisys benchmarks under standard conditions.

Common Solution Attributes

Environmental Specifications (temperature, humidity, altitude de-rating)	Continuous Operation (PMM, ISM, OPS)	5°C to 40°C at 5% to 85% RH with 29°C dew point. De-rate maximum allowable temperature by 1°C per 175 m above 950 m (1°F per 319 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).
	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 5°C Maximum altitude for the operating temperature must be 3050m (10,000 ft)
Maximum Heat Dissipation		Single Partition, 2 PMM, 2 ISM, 2 OPS: 11,028 BTU/hr. (max)
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, 2 ISM, 2 OPS: 987 lbs. (447.6 Kgs) shipping weight
Power	Supply Voltage	100-240VAC
	Current Consumption	System: 16.2A@200VAC
	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 12,000m (-50 ft to 39,370 ft)
Airborne Contaminant Level		Class G1 or lower as defined by ANSI/ISA71.04-2013
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		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 contact your Unisys Sales representative or visit us on www.unisys.com/ClearPath.



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