Unisys ClearPath Dorado 6380/6390 Systems
Product Information Sheet

ClearPath Dorado 6380 / 6390 Server: Leading Edge Architectural Innovations

- ClearPath Fabric based Architectural innovations
- Mission-critical, high-volume transaction processing environment
- Fully redundant, high performance OS 2200 systems
- Security and Availability with Expanding Capabilities
- Flexible Performance and Workload allocation

The ClearPath Dorado 6380 and 6390 systems introduce the next evolution of ClearPath architecture into a fabric based compute infrastructure. This new system architecture improves the ease of creating, testing, deploying, and maintaining new ClearPath applications and services through the use of modern tools and skills typically used by the current generation of software developers. Utilizing the fabric based architecture, OS 2200 based applications gain bi-directional access to Windows or Linux resources; while preserving the integrity and security of the ClearPath host environment.
The capabilities of the ClearPath fabric infrastructure are natural and familiar to the Windows and Linux “state of the art” programming environment, such that OS 2200 application services and data are viewed seamlessly with other Windows and/or Linux applications.

The ClearPath Server Architecture continues Unisys commitment to, and strategy for, developing new ClearPath platforms capable of meeting the demands of our clients – both now and into the foreseeable future. A key element of this initiative is the integration of market-leading technology, such as the latest Intel® processor platforms, and an innovative, Unisys developed approach to hardware resource allocation known as secure partitioning (s-Par®).

s-Par provides the predictable performance to the various elements which support the OS 2200, Specialty Partitions, and Enterprise Windows and Linux workloads available on the Dorado 6380 and Dorado 6390. The resulting platform provides the foundational attributes needed to support dynamic, mission-critical environments. The ClearPath Dorado 6380 and Dorado 6390 systems deliver not only all of the traditional attributes common to ClearPath systems, but also many new business capabilities for extending the role and value of your IT infrastructure.

Improved Performance for OS 2200
Applications and Data

- Mission critical ClearPath mainframe attributes with expanded processor and IO performance
- Traditional and pay-for use licensing models to match client business needs
- Industry-leading security and high availability capabilities
- Fabric based Infrastructure extends OS 2200 Specialty Partitions
- Integrated stack for operational optimization

The new high-end ClearPath Dorado 6380 and 6390 systems are the latest generation of enterprise-class systems which implement the OS 2200 operating system on Unisys Intel platforms. The Dorado 6380 and 6390 systems deliver high end processor and IO performance with mainframe levels of security, availability, and reliability in a powerful modular design which can be customized to meet a wide range of customer requirements. As with every OS 2200 system, the Dorado 6380 and 6390 family offers full object code and data compatibility. Existing applications running on supported releases of OS 2200 may be deployed to Dorado 6380 and 6390 systems without recompiling or relinking applications.

The Dorado 6380 and Dorado 6390 processors provide full high-end system and single thread performance. The Dorado 6300 utilizes a new and improved I/O subsystem which comes with integrated Specialty Partitions. As a result, these platforms are capable of delivering significantly higher I/O performance and incorporate new integration technologies for enterprise workload support. These features combine to offer measurable financial benefits for Dorado customers who require high levels of OS 2200 performance.

The Dorado 6380 and 6390 licensing options offer multiple business models to meet diverse needs of the OS 2200 clients. The Dorado 6380 system continues the Traditional business model which provides for software licensing based on a fixed performance level. Additional flexibility is offered with Capacity on Demand options for temporary workload increases, short term, and long term business continuance capabilities providing the flexibility to quickly adapt to unforeseen business requirements.

Dorado 6390 systems are licensed following Pay-for-Use business models utilizing Unisys’ advanced metering technology. Metering technology allows customers to instantly take advantage of extra processing capacity while only being charged for the resources used. The Dorado 6390 continuously measures and records actual processing resources consumed by the system. The immediate benefits of the advanced Pay-for-Use business models include:

**Operational benefits:**
- Quickly adapt to changes in demand
- Improved service level management
- Easier capacity planning

**Financial benefits**
- Reduced capital investment for the maximum system capacity
- Pay only for what you use
- Better match of revenues to expenses
- Easier to manage capacity related business risk
Flexible Secure Environment with a Focus on High Availability

The Dorado 6300 hardware design is built upon multiple Unisys Intel processors integrated though a high-speed, interconnect fabric. This modular design provides in-built redundancy and customizable configurations of the IO subsystem. The Processor Memory Module (PMM) is the main OS 2200 processor component provided in the Dorado 6380/6390. The PMM supports the full range of the OS 2200 instruction set, and includes a full 16GW of memory. Multiple high-speed 1Gb or 10Gb Ethernet connections are also provided in the PMM. The High Availability Processor Memory Module (HA-PMM) is standard feature on the Dorado 6380 and 6390. This High Availability option provides one button fail-over in the rare event of a fatal error in the processing module. Similar to the redundant IPs in previous designs, the addition of the HA-PMM allows the full recovery of the remaining Dorado components within a matter of minutes.

Unisys’ innovative s-Par secure partitioning technology is used within the Dorado 6380/6390 I/O Specialty partition Modules (ISMs) to provide a highly secure environment which allows a single Unisys Intel platform to host the Partitioned Storage I/O Processor (PSIOP) and selected OS 2200 Specialty Partitions. The ISM is an integral part of the Dorado 6380 and 6390 system providing the Storage I/O processing and additional functional processes that enhance the OS 2200 environment. Up to four ISMs may be configured with a Dorado 6380 or Dorado 6390 partition to provide flexible and resilient storage access. New configuration options for 8Gb and 16Gb storage connections are supported within the ISMs.

The first ISM in each partition provides a PSIOP and a partition for the ClearPath ePortal Business for OS 2200 used to extend OS 2200 applications to Web browsers, mobile devices, and Web Services. A second ISM is included for additional PSIOP connectivity and a partition for Enterprise Output Manager (EOM) Department Edition and metered Utilization Report Utility (URU) services. Two more ISMs may be added for additional storage connections.

The Dorado 6380 and Dorado 6390 systems include licenses for ClearPath ePortal Business, the EOM and URU software. The inclusion of these Specialty Partitions into the Dorado 6300 design eliminates the cost and complexity associated with the maintaining separate platforms for these key functions.

The Dorado 6380 and 6390 operating software supports the latest in evolving security features including Cipher Application Programming Interface (API). The encryption specialty engine provides the necessary software and hardware for these functions.

The Dorado 6300 hardware provides extensive native redundancy across primary system components – including power supplies, cooling, storage sub-system, and mirrored memory with chip fail support. Dorado 6380 / 6390 system resiliency is further enhanced by the inclusion of redundant processor, IO subsystems, and supporting fabric infrastructure components.

Single or dual OS 2200 partition configurations are available with the Dorado 6380 and Dorado 6390 systems, which allow hosting of different workload environments in each partition. Each OS 2200 partition supports the PMM, a HA-PMM, 2 to 4 ISMs, and the ClearPath Fabric infrastructure to connect these modules with additional Windows or Linux workloads.

Expanded Processing Capabilities through Specialty Partitions and Enterprise Processing Modules

- Extensible Fabric based Architecture
- OS 2200 JProcessor and QProcessor support options
- Enterprise Windows and Linux partitions for new ClearPath application support or any business application
- Focused solutions for Unix Migration, SAP support, and Data Center consolidation

The Dorado 6380 and Dorado 6390 include as a standard feature Unisys’ latest architectural advance for expanded Fabric based Infrastructure. Each Dorado 6300 system includes a highly-scalable fabric based computing platform which expands the OS 2200 processing capabilities to include additional Specialty Partitions, along with standard enterprise Windows, and Linux workloads.
The Unisys fabric computing environment can be expanded to include multiple Unisys Intel platforms and heterogeneous operating environments—all of which have been hardened to meet your need for enterprise-class applications.

s-Par provides the partitioning for the Enterprise Partitionable Platforms (EPP) to allow Specialty Partitions, Enterprise Windows, and Linux partitions to be hosted on a Unisys Intel platform. The basic fabric infrastructure includes high-speed interconnect between the components, a Fabric Management Platform (FMP), and a single EPP module. Additional EPPs with various performance capabilities and flexible configurations are available to meet most any workload requirement.

The Enterprise Partitionable Platform can host ClearPath OS 2200 JProcessor Specialty Partitions, ClearPath OS 2200 QProcessor Specialty Partitions, and Enterprise Windows and/or Linux partitions.

The ClearPath OS 2200 JProcessor Specialty Partition provides a secure, integrated environment which supports the latest releases of the Java™ Platform, Standard Edition (SE), and the Java Platform, Runtime Enterprise Edition (EE). Java SE provides the Java Virtual Machine, libraries, and other components to run portable applications written in the Java programming language. Java EE is an industry standard for developing robust, scalable and secure server-side Java applications. The JBoss Enterprise Application Server™ for ClearPath OS 2200 may be added to the Java EE environment to help build and manage your enterprise Java applications.

ClearPath OS 2200 Resource Adapters provide connections from Java applications to DMS, RDMS, BIS databases; and TIP, HVTIP and Open/DTP transactions.

The ClearPath OS 2200 QProcessor Specialty Partition supports IBM WebSphere® MQ message queuing. This integration enables applications using messaging to take advantage of the high levels of performance, reliability, and security of the OS 2200 operating system.

The JProcessor and QProcessor require separate image Enabler licensing to be activated on the EPP module. Once licensed they act as fully integrated, transparent extensions to the OS 2200 processing environment.

One EPP module is included with the Dorado 6380 and Dorado 6390 system. Up to 11 additional EPPs may be added to the Fabric to support a combined total of up to 144 partition instances.

Additional workloads available for the EPP are:

- Windows Server 2008 R2 SP1
- Windows Server 2012
- SUSE Linux Enterprise Server 11 SP3
- Red Hat Enterprise Linux 6.4

OS 2200 Integrated Stack

Dorado 6380 and 6390 systems leverage an integrated stack consisting of hardware, software, middleware and applications optimized for reliability, resiliency, security, scalability and performance.

A set of powerful SOA capabilities allow existing ClearPath OS 2200 applications and data to participate in or be built entirely new SOA services. In addition, a rich set of industry-standard middleware technologies are available for integrating ClearPath data and transactions – including JDBC, ODBC, .NET, Java, and Open DTP.

The ClearPath OS 2200 release 15.0 is the integrated software stack required to support the ClearPath Dorado 6380 and 6390 servers. With 112 Unisys software products, the OS 2200 operating environment is comprised of enterprise system software, spanning the operating system, databases, transaction management, development, and many other software elements for enterprise-class solutions.

These high-end ClearPath 6380 and 6390 systems incorporate a completely integrated stack where all components are designed, developed, integrated, tested and supported by Unisys. As result, the task of integration is minimized, regression testing is reduced, asset auditing is simplified and interoperability challenges eliminated, allowing clients to focus on their mission critical computing needs.

Maximizing Investments

To help optimize technology investments, Unisys offers a single point of serviceability backed by education, support and training. Unisys recognizes that clients deserve innovative solutions and builds an end-to-end solution to meet our clients’ mission critical needs.
## Technical Specifications

<table>
<thead>
<tr>
<th>Key Hardware Solution Features</th>
<th>ClearPath Dorado 6380/6390 system</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Form factor</strong></td>
<td>Cabinet</td>
</tr>
<tr>
<td></td>
<td>42U rack</td>
</tr>
<tr>
<td><strong>MIPS Performance Level</strong></td>
<td></td>
</tr>
<tr>
<td><strong>See Note 1 below</strong></td>
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<tr>
<td><strong>Single Thread Processor MIPS</strong></td>
<td>510</td>
</tr>
<tr>
<td><strong>Traditional business model</strong></td>
<td>Dorado 6380 (250 – 4,200 MIPS)</td>
</tr>
<tr>
<td><strong>Pay-for-Use business model</strong></td>
<td>Dorado 6390 (105 – 2,900 MIPS/month with 4,200 MIPS Ceiling)</td>
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<tr>
<td><strong>Processor Memory Module (PMM)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>IO Specialty Partition Module (ISM)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Enterprise Partitionable Platform (EPP)</strong></td>
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</tbody>
</table>

### Quantity (2) Processor Memory Module (PMM)
- One Active, One Standby per partition

### Sockets / Processors / Chipset
- (2) / (2) Intel® Xeon processor E5-2667 v2 3.30GHz / Intel C600 series

### Memory
- 256GB; (16) 16GB, Low Volt, Dual Rank x4, 1600MHz RDIMMs (memory mirroring)

### Internal storage
- (6) 300GB 15K RPM 2.5" SAS 6Gbps Hot-plug (note: no user internal storage)

### User I/O ports
- 20 Communication Ports (max) per partition

### Quantity (2) IO Specialty Partition Module (ISM)
- Two additional ISMs may be purchased per partition

### Sockets / Processors / Chipset
- (2) / (2) Intel® Xeon processor E5-2690 v2 3.00GHz / Intel C600 series

### Memory
- 64GB; (4) 16GB, Low Volt, Dual Rank x4, 1600MHz RDIMMs (memory mirroring)

### Internal storage
- (6) 300GB, 15K RPM, 2.5" SAS, 6Gbps Hot-plug (note: no user internal storage)

### Unisys Specialty Partitions
- (1) ClearPath ePortal Business for OS 2200 per partition
- (1) EOM/URU per partition

### Quantity (1) Enterprise Partitionable Platform
- Up to 11 additional EPPs may be purchased

### Sockets / Processors / Chipset
- (2) / (2) Intel® Xeon processor E5-2667 v2 3.30GHz / Intel C600 series

### Memory
- 128GB; (8) 16GB, Low Volt, Dual Rank x4, 1600MHz RDIMMs

### Internal storage
- (8) 300GB, 15K RPM, 2.5" SAS, 6Gbps Hot-plug

### Unisys Specialty Partitions
- (1) ClearPath JProcessor for OS 2200, maximum of 6
- (1) ClearPath QProcessor for OS 2200, maximum of 4

### Common Attributes

**Form Factor**
- 2U

**Internal interconnect**
- 2 x Intel QuickPath Interconnect (QPI) links; 8.0 GT/s

**RAID controller**
- Integrated RAID Controller, 512MB NV Cache, 6Gb/s, RAID 10

**Ext Drive Bay(s)**
- DVD+-/RW, SATA, Internal

**Power**
- Dual, Hot-plug, Redundant Power Supply (1+1), 1100W

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**Note 1:** Performance information based on Unisys benchmarks under standard conditions
## Operations Server

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Form Factor</strong></td>
<td>1U</td>
</tr>
<tr>
<td><strong>Sockets / Processors / Chipset</strong></td>
<td>(1) / (1) Intel® Xeon® processor E5-2407 v2, 2.4GHz / Intel C600 series</td>
</tr>
<tr>
<td><strong>Internal interconnect</strong></td>
<td>Intel DMI 2.0</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>8GB; (2) 4GB, Low Volt, Single Rank x8, 1600MHz RDIMMs</td>
</tr>
<tr>
<td><strong>Internal storage</strong></td>
<td>(2) 300GB, 10K RPM, 2.5&quot; SAS, 6Gbps Hot-plug (note: no user internal storage)</td>
</tr>
<tr>
<td><strong>RAID controller</strong></td>
<td>RAID 1</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>Dual Hot-plug Redundant Power Supply (1+1), 350W</td>
</tr>
</tbody>
</table>

## Fabric Manager Platform (FMP)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Form Factor</strong></td>
<td>1U</td>
</tr>
<tr>
<td><strong>Sockets / Processors / Chipset</strong></td>
<td>(1) / (1) Intel® Xeon® processor E5-2407 v2, 2.4GHz / Intel C600 series</td>
</tr>
<tr>
<td><strong>Internal interconnect</strong></td>
<td>Intel DMI 2.0</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>16GB; (1) 16GB, Low Volt, Dual Rank x4, 1600MHz RDIMMs</td>
</tr>
<tr>
<td><strong>Internal storage</strong></td>
<td>(3) 300GB, 10K RPM, 2.5&quot; SAS, 6Gbps Hot-plug (note: no user internal storage)</td>
</tr>
<tr>
<td><strong>RAID controller</strong></td>
<td>RAID 5</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>Dual Hot-plug Redundant Power Supply (1+1), 350W</td>
</tr>
</tbody>
</table>

## Common Solution Attributes

### Environmental specifications

- **Continuous operation (PMM, ISM,OPS, EPP, FMP)**
  - 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). De-rate maximum allowable dry bulb temperature at 1°C per 300m above 950m (1°F per 547 ft above 3117 ft)

- **Storage (PMM, ISM,OPS, EPP, FMP)**
  - –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 at a maximum wet bulb temperature of 33°C (91.4°F); 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:**
    - No cold startup below 5°C
    - Maximum altitude for the operating temperature must be 3050m (10,000 ft)

### Maximum Heat Dissipation

- Single Partition, 4 ISM, 1 EPP: 37522 BTU/hr. (max), with 12 EPPs: 82622 BTU/hr. (max)
- Dual Partition, 8 ISM, 1 EPP: 62122 BTU/hr. (max), with 12 EPPs: 107222 BTU/hr. (max)

### Cabinet

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>External Metrics per cabinet</strong></td>
<td>US: H (80 in), W(23.875 in), D(46.5 in) / Metric: H(203.2 cm), W(60.64 cm), D(118.11 cm)</td>
</tr>
</tbody>
</table>
| **Chassis Weight (max)**  | Single Partition, 4 ISM, 1 EPP: 1593 Lbs. (723Kgs), with 12 EPPs: 2300 Lbs. (1043 Kg) max
  - Dual Partition, 8 ISM, 1 EPP: 1978 Lbs. (897Kgs), with 12 EPPs: 2686 Lbs. (1218 Kg) max |
<table>
<thead>
<tr>
<th>Power</th>
<th><strong>Supply Voltage</strong></th>
<th>100-240VAC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current Consumption</strong></td>
<td>PMM / ISM / EPP: 12A–6. 5A, IOM: 7. 5A -3. 5A, OPS / FMP: 4. 8A-2. 4A@100VAC-240VAC</td>
<td>Network Switch / KVM / LCD Monitor: 1. 4A@100VAC / 0. 3A@100VAC / 1. 5A@100VAC</td>
</tr>
<tr>
<td><strong>Frequency</strong></td>
<td>50-60Hz</td>
<td></td>
</tr>
<tr>
<td><strong>Cooling</strong></td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td><strong>Altitude</strong></td>
<td>Operating / Storage (PMM, ISM,OPS, EPP, FMP): -16m to 3,048m (~50 ft to 10,000 ft) / -16m to 10,600m (~50 ft to 35,000 ft)</td>
<td></td>
</tr>
<tr>
<td><strong>Airborne contaminant level</strong></td>
<td>Class G1 or lower as defined by ISA-S71. 04-1985</td>
<td></td>
</tr>
<tr>
<td><strong>Thermal and Acoustics</strong></td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td><strong>Availability</strong></td>
<td>High-efficiency, hot-plug, redundant power supplies; hot-plug drive bays; hot-plug, redundant fan; ECC memory, extended thermal support; ENERGY STAR® compliant, extended power range</td>
<td></td>
</tr>
<tr>
<td><strong>Remote Management</strong></td>
<td>Embedded Remote Management interface provides server-level management that monitors, reports, and controls power consumption at the processor, memory, and system level.</td>
<td></td>
</tr>
<tr>
<td><strong>System Management</strong></td>
<td>IPMI 2. 0 compliant</td>
<td></td>
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<tr>
<td><strong>Industry Compliance</strong></td>
<td>Compliant with all relevant industry certifications and guidelines, including 80 PLUS, Climate Savers and ENERGY STAR.</td>
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</tbody>
</table>

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