Data sheet
FUJITSU Server BS2000 SE310 and SE710

The powerful business servers
from entry level to high performance range

BS2000 Mainframes

BS2000 mainframes have been synonymous with reliability and innovative power for more than 40 years. Focused on innovation, openness, integration, cost efficiency and continuity, Fujitsu safeguards the investments of its mainframe customers on different hardware technology platforms and at the same time ensures that market developments and the associated customer requirements can be fully covered always.

The new FUJITSU Server BS2000 SE Series

The new FUJITSU Server BS2000 SE series is the continuation and integration of technologies from the previous Fujitsu mainframe lines of the S and SQ series as regards HW features and SW functions.
Designed as hybrid systems, the SE servers bring a new quality of openness and integration ability from various server and peripheral systems together with comprehensive, cross-system manageability.

New servers SE310 and SE710

The servers of the latest SE generation offer higher system performance for BS2000 and consistently expand the integrative concept of the SE infrastructure.
As a basic element, every BS2000 SE server contains a server unit, which is used as a platform for the operating system package BS2000 OSD/XC and the customer applications, which run on top. These server units are either provided as an SU /390 in classic mainframe architecture or as an SU x86 based on a high-end x86 server. A significant increase in performance over earlier server lines results in a very far-reaching scalability of the BS2000 SE servers, thus enabling tailor-made configurations with high growth potential.
In addition, application units, peripheral devices and network infrastructure components can optionally be integrated in SE310 and SE710.
With SE Manager, the Management Unit (MU) included in SE310 and SE710 provides a browser-based administration interface that provides a common view of the SE components and the optional additional products, thus enabling joint monitoring, operation and administration under an uniform interface.
LAN connections between the SE server components and into the customer's network are realized by the SE network unit (NU), which is also part of each SE server.

A service offer offers a customer-specific extension of the Net Unit and ranges from the design of the network connection to pre-configured delivery and installation in the customer's operations.

Two SE Server can be combined to a Management Cluster. In this case, the administration of all components of both SE Servers is possible. In a suitable configured Live Migration (LM) Cluster for /390 as well as for x86 server units a running BS2000 guest system can be moved from one SU to another without interruption. This can be used e.g. to move a running application to a second server in case of maintenance. In addition, load balancing between two servers is possible without any affect for the user. With automation, functions individually adapted for the customer beyond that Fujitsu offers high availability services. With that in the SE cluster alliance it is possible to provide the customers application again very quickly in case of a previous break down.

Features and benefits of SE servers

Main Features	Benefits
Server Units	
■ SU710 based on /390 technology, clear increase in monoprocessor and overall performance, new high-performance I/O system with 16 Gbit/s Fibre Channel ports ■ SU310 based on x86 Intel technology: object compatible to /390 applications	■ Business flexibility due to easy upgrading and thus performance according to demand available. ■ High productivity and quality levels for mainframe operation ■ Coverage of growing performance demands in the mid to upper performance range. ■ Optimal utilization of resources on the respective platform
Application Units	
■ Use of Linux and Windows applications on high-end x86 servers, which are integrated in the SE server	■ Very stable operation of customer applications due to the use of redundant components as well as the quality assurance and service concept of the SE servers, which is extended to cover application units. ■ Ideal AU adaptation to the application to be run due to flexible sizing and the use of both native and virtualized operating systems. ■ Overall picture of all units, clusters and virtual machines through integration into the SE Manager. ■ Common service concept including remote service for AUs and the other SE units.
Management Unit with SE Manager	
■ Modern browser-based graphical user interface ■ Uniform interface for administration, monitoring and operation ■ Superordinate view of system components	■ Single Point of Operation ■ User-oriented IT Management ■ Efficient Distribution of applications ■ Optimum cost control and efficiency
Variety of uses	
■ Classic mainframe usage ■ Support of various operating systems and platforms in one server ■ Parallel use of BS2000 and x86 applications	■ Excellent security and service concept for the highest standards ■ Identical runtime environment for production, as well as testing and development
Complete package	
■ All the components of the SE servers and the additionally integrated devices are preconfigured and tested as a complete package ■ Combination of mainframe and open world technology ■ Best-fit platform for every mainframe application	■ Low operating and administration costs, excellent automation features. ■ Flexible and comprehensive response of the customer to current and future market trends ■ Cost-efficient optimization through the use of the best possible platform for production and T&D applications
Management Cluster and Live Migration Cluster	
■ Two SE Server can be combined in a Management Cluster. Monitoring and Administration of all Units in both Server is done in one browser window. ■ Live Migration moves guest systems without interruption to the other server in the LM Cluster.	■ Simplified operation of all units in two SE Servers. ■ Operating state of all components at a glance. ■ Offline-maintenance on a server while the productive applications still run without interruption. ■ Load balancing between two SE Servers without any effect to the productive applications.

Structure and functions of the SE Server

The adjacent graphic shows the schematic structure of an SE server. The central components of an SE Server are the Server Units (SU), on which the operating system package BS2000 OSD/XC (native or in VM2000 guest systems) and the BS2000 customer applications run.

An SE Server SE710 contains a Server Unit SU710 based on the /390 mainframe technology.
A SE Server SE310 contains a Server Unit SU310 based on the x86 technology.

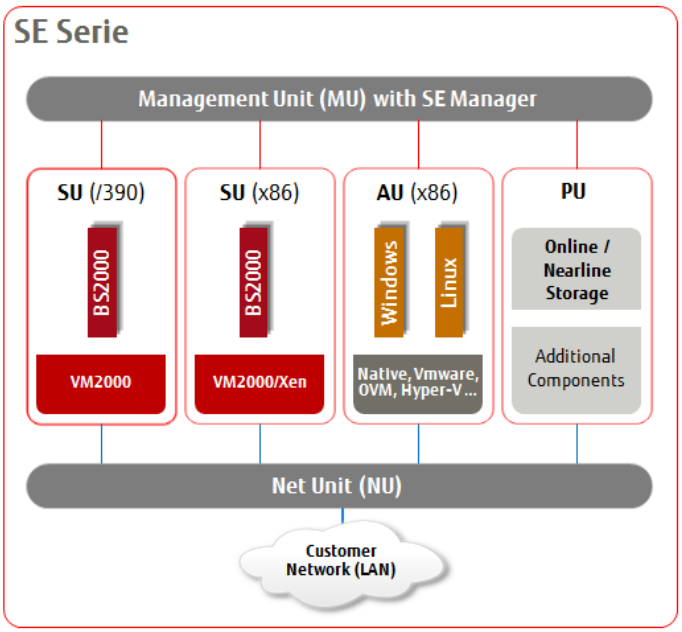
Optional are Application Units (AU), which are based on x86 technology and differ in the performance of the respective base model. The AUs run hypervisors such as VMware vSphere® or Oracle VM Server (OVM), operating systems such as Linux or Windows, and customer applications that use these systems.
The SE server can optionally be equipped with a number of peripheral devices (disk and tape), e.g. ETERNUS DX600.

The management unit (MU) manages all these components. The SE Manager (SEM) with its modern browser-based GUI enables the joint management of all units under a common interface. SE310 and SE710 use a new generation of MU hardware.

The net unit (NU), which consists of LAN switches and implements the networks required to operate the SE server, enables all units to be connected to each other and to the customer's data and administration networks. These networks are connected to the customer networks by means of uplinks in the switches. The basic configuration of the net unit takes place during system installation in the factory.
Because of their isolation, private, internal SE networks increase the security of network operations and enable high-performance data throughput regardless of any faults in the customer network. The simple configuration of internal server data connections increases the flexibility significantly.
The LAN connection of a SU710 is realized by the High-speed Net Connect (HNC), which is thus regarded as a component of the Net Unit. SE710 uses a new generation of HNC hardware.
Customers, who use many separate VLAN networks, physically separate these networks from each other or want to integrate these switches into their own Cisco-based network infrastructure and administration can achieve this by a net unit extension with Cisco switches.

It is provided together with a service for the development of a customer-optimized network structure, for customer-specific production and configuration in the factory, for commissioning at the customer and for support throughout the entire lifecycle.
In addition to data connections via the net unit, customer networks can also be directly connected to SE servers via LAN controllers in the HNC or in the SU x86.

All the components of the SE servers are supplied in a system rack. If additional space is required for optional server units, application units, peripherals or other components, the system rack can be supplemented with up to three expansion cabinets.



Components of SE Infrastructures

The parts of an SE server offer the same lifecycle:
Server Unit, Net Unit, Management Unit and all of their components are released together and they will reach their common end of service.

In order to be able to offer up-to-date versions of the additional products integrated in SE servers, such as application units or peripheral products, these products have their own lifecycle; their release date and end of service date may differ from the SE server dates.

The servers SE310 and SE710 use the SW version V6.3 of the SE software M2000, X2000 and HNC. In addition to support for the new hardware generations, SE software V6.3 offers a range of function enhancements that further simplify the administration and operation of the SE infrastructure and offer additional automation options:

- Improved overview of units and installed software, software status, fixes and add-ons
- Uniform BS2000 system/device configuration SU /390 and SU x86: Generation of the IORSF in the SE Manager
- Simplify Fibre Channel network configuration
- Enhanced functionality for SE monitoring
  - HW unit status display at component level
  - Events for Unit Status
  - SNMP traps for openSM2 events
  - SNMP formwork for BS2000 systems
- Monitoring the HW status of many AUs
- Support of new AU generations

SE Server Unit SU710

Compared to the previous business server S210, the SE /390-server unit are characterized by a newly developed processor module with 8 BS2000 CPUs. An SU710 has one or two system boards - each with one of these processor modules. Depending on the configuration of the SU710, one or all the CPUs of this module(s) are active.

The 8 CPUs of a system board now share a joint 2nd-level cache of 24 MB. Furthermore, the memory accesses within a system board are accelerated by the memory controller integrated in the processor chip.

The processing power of the SU710 is about 10% higher than that of the SU700, depending on the model.
Additional performance gains result from a faster peripheral connection:
The I/O system of the SE servers was newly designed. The 16 Gbit/s Fibre Channel channels of the SU710 offer a significantly higher data rate. They are installed in channel boxes that are connected to the IOPs on the system boards via PCIe. Up to 4096 devices (LUNs) can be addressed per channel path to a controller.
The number of parallel FC I/Os to the HNC has been increased to 64.
SU710 supports Fast Dynamic PAV. FastDPAV provides high-performance parallel I/Os on one disk. This requires considerably fewer ALIAS devices than with PAV, which do not have to be assigned to the real LUNs either statically or temporarily.

Up to 15 CPUs are supported in a VM2000 guest system on a SU710.
All SU710 models are equipped with a standby processor, which is activated dynamically if a processor fails and serves as a replacement for the defective processor. The applications can continue running without any interruption and without reduction in performance.
The optional CoD (Capacity on Demand) feature can be used to temporarily attach or detach additional CPUs without any system interruption. This enables the available performance to be flexibly matched to the changing needs of the application.

Model upgrades can easily be performed onsite.

The SU710 models support programs using virtual 31 or 24-bit addresses as well as ESA data spaces. The Real Address Extension Feature is used to convert virtual data addresses (31-bit) with hardware support into extended real addresses (40-bit) of the main memory. This enables memory expansion of up to 256 GB in the SE710 servers and makes it possible to run several applications in parallel with large address spaces without any performance bottlenecks caused by intensive paging.

The network connection (LAN) of SE710 servers is implemented via the redundant net unit and one to four HNCs, of which one is already included in the server's basic configuration.

The Management Unit is used to operate, monitor, manage, diagnose and maintain the SE710 Business Server.
A management unit is already included in the basic configuration of the SE710.

The new modular design of the SE710 with a system cabinet on a standard rack basis saves considerable space and energy, while at the same time allowing additional components, such as the net unit, HNC and management unit to be integrated.

The following table describes the basic configuration of the Server Unit /390 in the different SE710 models. Compared to the SE700B, the SE710 offers a number of different mono and bi-processor models with staggered performance data, which also cover the application range of the former SE500.

Basic configuration SE710

Model	Number of BS2000-processors[1)]	Number of system boards [2)]	Main memory in the basic configuration	Number of Channel boxes[3)]	Number of FC Channels[3)]
SE710-10A	1	1	4 GB	2	14
SE710-10B	1	1	6 GB	2	14
SE710-10C	1	1	6 GB	2	14
SE710-10D	1	1	8 GB	2	14
SE710-20A	2	1	8 GB	2	14
SE710-20B	2	1	8 GB	2	14
SE710-20C	2	1	12 GB	2	14
SE710-20D	2	1	12 GB	2	14
SE710-30	3	1	24 GB	2	14
SE710-40	4	1	24 GB	2	14
SE710-50	5	1	32 GB	2	14
SE710-60	6	1	32 GB	3	18
SE710-70	7	1	48 GB	3	18
SE710-100	10	2	48 GB	3	22
SE710-120	12	2	48 GB	3	22
SE710-140	14	2	64 GB	3	22
SE710-150	15	2	64 GB	3	22
SE710-160[4)]	16	2	64 GB	3	22

1) All SE700B models except SE710-160 are also equipped with a spare processor ("Hot Spare CPU")
2) Each system board has 2 IOPs, up to 8 BS2000 CPUs and up to 128 GB main memory.
3) Up to 8 channel modules, each with 2 FC channels, can be installed in each channel box; exception: the first slot in the first channel box is used by the system. Up to 8 channel boxes and up to 126 FC channels can be configured in an SE710.
4) Available as special release only

SE Server Unit SU310

The basis of the new SU310 server unit is formed by a high-end x86 server with four processors Intel® Xeon® Gold 6242 with 16 cores and a frequency of 2.8 GHz. In addition to very high performance and scalability, this processor family also offers the best RAS features. An additional firmware layer from Fujitsu ensures both the running of BS2000 OSD/XC and the fully object-compatible support of BS2000 customer applications on the SU310. Finally, the SU310 firmware also provides for the connection of the necessary peripherals for BS2000.
The SU310 has and supports the following components and features:

Processor

- Four Intel® Xeon® Gold 6242 , 16 Cores, 2,8 GHz

Main memory

- 128 GB to 512 GB,
  built of the following DIMMs with 32GB 2Rx4 DDR4-2933 R ECC

PCIe slots

- 4x PCI-Express Gen3 x 16, LP
- 4x PCI-Express Gen3 x16

One of these slots is used with the disk controller for the system disks. Another slot contains a 4 port 10 Gbit/s Cu controller; 2 of these ports are always used to connect the BS2000 systems to the net unit. If the net unit is redundant, a second 4-port 10 Gbit/s Cu controller is necessary. The further 6 slots can be equipped with the following PCIe controllers.

Supported PCIe controllers

- Fibre Channel: 2 Port, 16 Gbit/s and 2 Port, 32 Gbit/s
- Ethernet: 4 Port, 1/10 Gbit/s RJ45
  4 Port, 10 Gbit/s SFP+ LC

Disks, drives and others

- 1 integrated RAID SAS 2,5" 12G 600 GB system disks, mirrored to 1 additional identical hard disk
- DVD-RW drive
- 12 hot plug fans (redundant)
- 2 hot plug power supplies each1600 W (phase-redundant)

Interfaces and onboard controllers

Available for internal server use:

- VGA: for connection to KVM
- SATA: for DVD-writer
- SAS RAID: for system disks
- IRMC: integrated remote management controller
- LAN: 4 x 1000 Gbit/s T OCP

Internal Server peripherals for BS2000-use on SU310 (optional)

- Storage subsystem ETERNUS DX100 S4/S5 (1 CM with FC 16 Gbit/s)
  One-path FC direct connection without switch, support for HDD and SSD, use as RAID system without SHC-OSD,
  for further technical data, see data sheet ETERNUS DX100 S4/S5
- Magnetic tape cartridge system ETERNUS LT140
  Direct FC connection without switch, one LTO6 or LTO7 drive, 20 slots for cartridges, for further technical data see data sheet ETERNUS LT140

  These peripheral systems can also be operated on application units instead of the server unit. Their lifecycle corresponds to the SU310 lifecycle.

Basic configuration SE310

The SE310 models SE310-10R and SE310-10 with 1 BS2000 processor and SE310-20 with 2 BS2000 processors are available for the lower to medium performance range. The basic configuration contains 128 GB of memory, 16 GB of which are used by the SU310 firmware. About 40% of the remaining main memory for BS2000 systems is required for the JIT; slightly more than half of the total main memory is available for the operating system and applications.
By default, 16 GB of memory is allocated to the BS2000 system or each BS2000 guest system; this value can be increased to the maximum available memory.

The network connection (LAN) of the SE310 servers is realized via the Net Unit, which is designed for SE310 either as a single switch or as a redundant switch pair.

The Management Unit is used to operate, monitor, manage, diagnose and maintain the SE310 servers. A management unit is already included in the basic configuration of the SE310.

System software for SE Server Units SU310 and SU710

BS2000 operating system	BS2000 OSD/XC V11.0B native as guest system or BS2000 OSD/XC V10.0 as guest system
VM2000 (optional)	VM2000 from V11.5 with monitor system BS2000 OSD/XC V11.0B
X2000 for SU310	X2000 V6.3 is part of the SU310 server unit and is delivered installed on the SU without a separate order.

Management Unit (MU M3)

- Each server SE310 and SE710 is delivered with one MU.
- 19" rack module (1HE)
- 1 Processor Intel® Xeon® Silver 4216 16C, 2.10 GHz 22MB,turbo: 2.70 GHz 9.6 GT/s 2,400 MHz, 100W
- 1 additional similar processor optional
- 64 GB main memory
- 2 integrated RAID SAS 2,5" 12G system disks with 600 GB, mirrored on 2 additional identical disks
- RAID Ctrl PRAID EP420i SAS 12G 2GB(D3216-B)
- DVD-RW supermulti ultra slim SATA writer
- 4 hot plug double fans redundant
- 2 redundant power supplies with 450 W each

Interfaces and controllers (only for internal server use):

LAN	2 * 1Gbit/s Ethernet Controller onboard
VGA	For connecting the KVM
SATA	For the DVD-writer
SAS RAID	For the mirrored system disks
iRMC	Integrated Remote Management Controller
FC	0-2 * LPe31002 MMF LC

- As an option, a second redundant management unit can be used. Therefore, one FC connection to the configuration raw device is necessary; recommended is a 2-path connection to the CRD for each MU. 1-2 FC controllers LPe31002 are required for the connection.

Software for the Management Unit

- MU-Software:
  M2000 V6.3 as a part of the Management Unit MU M3 is installed on the MU and delivered without extra order.
- Remote Service for SE Server is realized via AIS Connect, which is integrated into the Management Unit.
- Add-on Packs (for versions see the release notes):
  - StorMan is part of the basic configuration of the SE Servers; if required by new peripheral devices, newer StorMan-versions should be retrofitted later.
  - openSM2 web interface to measure performance, optional, part of openSM2 (BS2000)
  - ROBAR Server to control the tape library, optional
  - open UTM WebAdmin to administer openUTM, optional
  - SEHABASIS/SEHAMONITOR for the implementation of a monitoring solution (service offering)
  - NUXC Add-on, SEM Support for Net Unit Expansion with Cisco Switches (Service Offer)

Net Unit (NU M2)

The Net Unit makes it particularly easy to set up, administer and monitor data and administration networks via the SE Manager.

- LAN switch ICX7450 with 48 1 Gbit/s ports RJ45, 2 redundant power supplies
- A redundant additional switch is part of the basic configuration for SE710, optional for SE310.
- The net unit is connected to the server unit and to each application unit in the SE server via their onboard and PCI controllers (pre-configuration in the factory).
- 4x 10 Gbit/s SFP+ ports for stacking to net unit extensions and ISL-E connections between 2 NUs in a cluster
- Up to 8 x 1 Gbit/s Cu connection ports (untagged) as uplinks in customer data networks, the administration network and a separate operator network (optional). Further 1 Gbit/s Cu connection ports can also be used for ISL-E connections to a 2nd NU in a cluster.

Net Unit 10Gbit/s Extension (optional)

- LAN-Switch ICX7750 with 48 Ports for 10Gbit/s SFP+ controller (optical cable). 1 Gbit/s connection between the basic net unit and the 10 Gbit/s net unit extension (SFP Twinax)
- Redundancy of the 10Gbit/s NU Extension as option; 40 Gbit/s connection between 10Gbit/s NU extensions (QSFP+ Twinax).
- Redundant connection of Server - and Application Units via 10Gbit/s SFP+ controller with optical cable to each ICX7750 Switch possible.
- Preparation of a 10Gbit/s Uplink into the customer's data networks for every 10Gbit/s public network.
- SFP+ controller for more connection have to be ordered extra.

Net Unit Expansion with Cisco Nexus® Switches

Additional customer requirements for the network connection of SE units can be realized by extending the net unit with Cisco switches.

- Use of tagged VLANs for logically separated networks
- Physically separated data networks
- High connectivity and performance for very large SE infrastructures
- Network administration with the Cisco tools, together with other Cisco-based network infrastructure in the customer network

Fujitsu therefore offers, together with the customer

- To work out a customer-specific optimal network connection
- To set up, cable and configure the necessary Cisco switches during the production of the SE server, and
- To put these switches into operation at the customer's site and to support them during the operating phase.

In the SE Manager, this service is supplemented by functions for HW overview of the switches used, overview of the configured networks, status monitoring, remote service and interfaces for configuration backup and firmware updates.

The following NU extensions are offered

- Cisco Nexus 93180YC-FX, 48 x 1/10/25 Gbps fibre ports and 6 x 40/100 Gbps QSFP28 ports
- Cisco Nexus 9348GC-FXP, 48 x 100M/1G BASE-T ports, 4 x 10/25-Gbps SFP28 ports and 2 x 40/100-Gbps QSFP28 ports
- Operation with NX-OS V9.2.3 and higher

The exact description of the switches can be found in the Cisco data sheet for the switches of the Nexus 9300 series.

High-speed Net Connect (HNC M3)

- Every SE710 server is supplied with a HNC, which is connected to the net unit.
- Rack-server 19" (1U)
- 2 Processors Intel® Xeon® Silver 4208 8C, 2.10 GHz, turbo: 2.50 GHz, 9.6 GT/s, Mem bus: 2,400 MHz, 85 W
- 32 GB main memory
- 2 integrated RAID SAS 2,5" 12G system disks with 600 GB, mirrored, hot pluggable
- RAID Ctrl PRAID EP420i SAS 12G 2GB(D3216-B)
- DVD-RW supermulti ultra slim SATA writer
- 4 hot plug double fans (redundant)
- 2 redundant power supplies with 450 W

Interfaces and controllers (only for internal use)

LAN	2 * 1Gbit/s Ethernet Controller onboard, 1 x PLAN EP X710-T4 4x10GBASE-T
VGA	For connection to KVM
SATA	For the DVD-writer
SAS RAID	For the mirrored system disks
iRMC	Integrated Remote Management Controller
FC	1x FC Ctrl LPe31002 MMF LC

As standard, a HNC is directly connected to an FC port of the SE710 via a single path; as an option, a second FC connection is possible, increasing redundancy and capacity.
The connection to the net unit is via the two ports of an Ethernet controller with four ports, 1/10 Gbit/s, Cu. This controller is already part of every HNC.
Max. 2 Ethernet controllers per HNC are possible thus; another Ethernet controller can be configured additively. The following controllers are available:

- 4 Port, 10 Gbit/s, Cu (PLAN EP X710-T4 4x10GBASE-T)
- 4 Port, 10 Gbit/s, SFP+ (PLAN EP X710-DA4 4x10Gb SFP+)

As an option, 1-3 additional HNCs can be configured to increase performance and redundancy as well as additional LAN ports.

Software for HNC:

- HNC software: HNC V6.3 is installed on the HNC and delivered without extra order.

Application Unit AUQ38E (optional)

High-end x86 server in a 7 U chassis,
based on PRIMEQUEST PQ3800E

- 2 – 4 system boards for 2 processors each
- Up to 8 scalable Intel® Xeon® Platin processors, up to 224 Cores
- 24 DDR4 DIMM slots per system board, up to 12 TB main memory expansion in total
- 2 Management Boards, 1 - 4 I/O Units, 1 - 4 Disk Units, up to 16 PCI Express V3.0 slots, expandable with PCIe boxes
- 6 power supplies, 6 hot-plug fans
- AUQ38E can be divided into up to 4 physically separated partitions. Extended Partitioning is not supported.
- For more information see PRIMEQUEST PQ3800 data sheet
- Each AU requires a performance-related number of integration licences

Database Unit DBU38E (optional)

High-end x86 server, based on PRIMEQUEST PQ3800E

- The base system is an AUQ38E with fixed hardware configuration (SB, CPU, memory, I/O units, Controller ...). The DB Unit is customized in relation to the customer specific database application and required performance.
- In addition, the DB Unit contains the customer-specific software configuration and the necessary services for the preparation and maintenance of the system basis for the database environment according to the customer's requirements.
- For the DB Unit also a performance-related number of integration licences is required.

Application Unit AU47M3 (optional)

High-End x86 Server, based on PRIMERGY RX4770 M3

- System board for 2 or 4 Intel® Xeon® E7-4800/8800 v4 processors
- 2 - 8 memory boards for 12x DDR4 LV DIMM modules each
- 8 slots for hot-plug 2.5" SAS/SATA HDD/SSD
- 8 hot-plug fans (7 + 1 redundancy)
- 4 power supplies (redundancy)
- DVD-RW writer
- 4 / 10 PCI express slots depending on configuration (2 / 4 CPUs)
- For more details see the RX4770 M3 data sheet
- Each AU requires a performance-related number of integration licenses

Application Unit AU47M5 (optional)

High-End x86 Server, based on PRIMERGY RX4770 M5

- System board for 2 or 4 Intel® Xeon® Gold or Platinum processors
- 2 - 4 memory boards for each 12x DDR4 DIMM modules
- 16 slots for hot-plug 2.5" SAS/SATA HDD/SSD
- 12 hot plug fans (11 + 1 redundant)
- 2 hot plug power supplies(redundant)
- DVD-RW-writer
- 4 / 8 PCI express slots depending on configuration (2 / 4 CPUs)
- For more details see data sheet RX4770 M5
- Each AU requires a performance-related number of integration licenses

Application Unit AU25M4 (optional)

Dual socket x86 rack server, based on PRIMERGY RX2530 M4

- System board for 1 or 2 Scalable Intel® Xeon® processors (Bronze/ Silver/Gold/Platinum)
- 12x DDR4 DIMM slots per processor for 8 GB to 3.072 GB memory
- Up to 8 hot-plug 2.5" SAS HDD/SSD
- 4 hot-plug fans per CPU, redundant
- 2 power supplies (redundancy)
- DVD-RW writer
- 4 PCIe Express V3 slots (3, if only 1 processor is mounted)
- For more details see the RX2530 M4 data sheet
- Each AU requires a performance-related number of integration licenses

Application Unit AU25M5 (optional)

Dual-Socket x86 Rack-Server, based on PRIMERGY RX2540 M5

- System board for 1 or 2 Scalable Intel® Xeon® processors (Bronze/Silber/Gold/Platin)
- 12x DDR4 DIMM slots per CPU for 8 GB to 3.072 GB memory
- Up to 24x 2.5" SAS/SATA hot plug HDD/SSD
- 3 hot plug fans per CPU, redundant
- 2 power supplies, (redundancy)
- DVD-RW writer
- 10 PCIe-Gen3 Express slots (5 with only 1 processor)
- For more details see the RX2530 M5 data sheet
- Each AU requires a performance-based number of integration licenses.

The number of AUs that can be connected to an SE server depends on the type of AU and can be taken from the current release note for M2000.

Software for Application Units

For AU25 and AU47 the following software is supported

- SUSE Linux Enterprise Server
- Red Hat Enterprise Linux
- Microsoft Windows Server
- VMware vSphere® ESXi
- Microsoft Windows Hyper-V Server
- Oracle LINUX
- Oracle VM Server

AUQ38 and DBU38 are released only with virtualisation:

- VMware vSphere®
- Microsoft Windows Hyper-V Server
- Oracle VM Server

In total, the SE Manager supports the display of up to 1500 virtual machines of application units. The supported versions are listed in the release notes of the MU software M2000.
More operating systems and virtualization products for use on Application Units on demand.

Installation data

SE710 Basic Configuration

SE710 System Cabinet	
Width	700 mm
Depth	1110 mm
Height	2000 mm
Maintenance area	front: 740 mm, rear: 800 mm sideways right: 60 mm (to open the door completely) sideways left or right 700 mm
Weight	610 kg (SE710 full configuration with 2 system boards, 16 CPU, 256 GB memory, 8 channel boxes with 8 FC-channels each, 1 MU, 1 HNC, 1 NU, rack infrastructure)
Rated voltage	200-240V±10%
Network connection options	The SE710 is connected via four 1-phase connections CEE plug blue (small), 16A. If additional units are added, e.g. in an expansion rack, further 1-phase connections CEE plug blue (small), 16A are required depending on the configuration. Only these additional connections can alternatively be configured as 1-phase connections CEE plug blue (large), 32A or with a three-phase connection. See below for power consumption of optional expansions.
Power cable length	Power cable, 4 m long
Frequency	50 Hz - 60 Hz
Power consumption, max.	3,2 KVA (SE710 full configuration with 2 system boards, 16 CPU, 256 GB Speicher, 4 channel boxes with 8 FC-channel each, 1 MU, 1 HNC, 1 NU, rack infrastructure)
Heat generation, max.	11500 kJ/h
Sound pressure (LpAm)	Server Unit SU710: 60 dB(A) See below for data of the other basic configuration components.
Operating temperature	10°C to 32°C
Standards	CE Class A (*) CB, ROHS, WEEE

SE310 Basic Configuration

SE310 System Cabinet	
Width	700 mm
Depth	1100 mm
Height	2000 mm
Maintenance area	front: 740 mm, rear: 800 mm sideways right: 60 mm (to open the door completely) sideways left or right: 700 mm
Weight	220 kg
Rated voltage	200-240V±10%
Network connection options	The SE310 is usually connected via four 1-phase connections with a blue CEE plug 16A. Alternatively, 1-phase connections with a blue CEE plug, large, 32A or 3-phase connections can also be configured for SE310 and any of its built-in optional extensions. See below for the power consumption of optional extensions.
Power cable length	Power cable, 4 m long
Frequency	50 Hz - 60 Hz
Power consumption, max.	2,1 KVA (SE310 basic configuration SU310 (4 CPU, 512 GB Speicher, 8 PCIe-Controller), 1 MU, 1 NU, rack infrastructure)
Heat generation, max.	7600 kJ/h
Sound pressure (LpAm)	Server Unit: SU310: typical 47,4 dB(A) See below for data of the other basic configuration components.
Operating temperature	10°C to 35°C
Standards	CE Class A (*) CB, ROHS, WEEE

Server Unit SU310	
Weight	Approx. 30 Kg
Rated voltage range	100 – 240 V
Network connection options	As described for the basic configuration SE310 and SE710
Rated frequency range	50 Hz – 60 Hz
Power consumption, max.	1300 VA
Heat generation, max.	4640 kJ/h
Sound pressure (LpAm)	Typical 47,4 dB(A)
Operating temperature	10°C to 35 °C
Standards	Global : CB, RoHS, WEEE, EUROPE: CE Class A (*)

SE optional extensions

SE Extension Rack	This rack is used in configurations, which exceed the first SE Server rack (system rack). Up to three extension racks can be used in one SE server.
Width	700 mm
Depth	1110 mm
Height	2000 mm
Maintenance area	front: 740 mm, rear: 800 mm sideways right: 60 mm (to open the door completely) sideways left or right: 700 mm
Weight	140 kg (without mounted units)
Network connection options	The electrical connections for the optional devices in the extension rack need to be configured by the customer. Available are PDUs with 1-phase connections with a blue large CEE plug (32A), 1-phase connections with a blue small CEE plug (16A) or 3-phase connections (3 x 16A). See below for the power consumption of optional extensions.

Management Unit MU M3	
Weight	max. 16 kg (depends on configuration)
Rated voltage range	100 – 240 V
Network connection options	As described for the basic configuration of SE310 and SE710
Rated frequency range	50 Hz – 60 Hz
Power consumption, max.	450 VA
Heat generation, max.	1610 kJ/h
Sound pressure (LpAm)	minimum 24dB(A), typical 39 dB(A) both when idle and in standard operation)
Operating temperature	5°C to 45°C
Standards	Global : CB, RoHS, WEEE Europe: CE

Net Unit NU M2	ICX 7450, 48 Ports 1 Gbit/s RJ45
Weight	Approx. 6,5 kg (depends on configuration)
Rated voltage range	100 – 240 V
Network connection options	As described for the basic configuration of SE310 and SE710
Rated frequency range	50 Hz – 60 Hz
Power consumption, max.	93 VA / 100 VA
Heat generation, max.	334 / 360 kJ/h
Sound pressure (LpAm)	47 dB(A)
Operating temperature	-5°C to 50°C
Standards	RoHS, WEEE CE Class A (*)

Note: The mentioned values apply for net units consisting of one switch. Redundant net units and port extensions consist of additional switches, whose values need to be added.

HNC M3	
Weight	Max. 16 kg (depends on configuration)
Rated voltage range	100 – 240 V
Network connection options	As described for the basic configuration SE310 and SE710
Rated frequency range	50 Hz – 60 Hz
Power consumption, max.	400 VA
Heat generation, max.	1430 kJ/h
Sound pressure (LpAm)	Minimum 24dB(A), typical 39 dB(A) both when idle and in standard operation
Operating temperature	5°C to 45°C
Standards	Global : CB, RoHS, WEEE Europe: CE

Net Unit 10Gbit/s Extension	ICX7750, 48 Ports 10 Gbit/s SFP+
Weight	Configuration dependant ca. 9 kg
Rated voltage range	100 – 240 V
Network connection options	As described for the basic configuration SE310 and SE710
Rated frequency range	50 Hz – 60 Hz
Power consumption	250 VA (typical), 327 VA (maximal)
Heat generation, max.	725 kJ/h
Sound pressure (LpAm)	62 dB(A) (average value)
Operating temperature	-5°C to 45°C
Standards	RoHS, WEEE CE Class A (*)

Note: The mentioned values apply to 10 Gbit/s Net Units expansions consisting of one switch. Redundant net units and port extensions consist of additional switches whose values need to be added.

Net Unit Extension Cisco 1/10 Gbit/s	Nexus 9348GC-FXP
Weight	Configuration dependant ca. 6,5 kg
Rated voltage range	100 – 240 V
Network connection options	As described for the basic configuration SE310 and SE710
Rated frequency range	50 Hz – 60 Hz
Power consumption	178 VA (typical), 287 VA (max.)
Sound pressure (LpAm)	67,5 to 81,6 dB(A) (50% to 100% fan speed)
Heat generation, max.	0°C to 40°C

Net Unit Extension Cisco 10/100 Gbit/s	Nexus 93180YC-FX.
Weight	Configuration dependant ca. 8 kg
Rated voltage range	100 – 240 V
Network connection options	As described for the basic configuration SE310 and SE710
Rated frequency range	50 Hz – 60 Hz
Power consumption	260 VA (typical), 425 VA (max.)
Sound pressure (LpAm)	57 to 77,4 dB(A) (50% to 100% fan speed)
Heat generation, max.	0°C to 40°C

Application Unit AU25M4	
Weight	Up to 16 kg
Rated voltage range	100 – 240 V
Network connection options	As described for the basic configuration SE310 and SE710
Rated frequency range	50 Hz – 60 Hz
Power consumption, max.	130 VA / 890 VA
Heat generation, max.	465 kJ/h / 3180 kJ/h
Sound pressure (typical configuration)	62 dB (in operation)
Operating temperature	10°C to35 °C
Standards	Global : CB, RoHS, WEEE, Europa: CE, FCC Class A (*)

Application Unit AU254M5	
Weight	Up to 25 Kg
Rated voltage range	100 – 240 V
Network connection options	As described for the basic configuration SE310 and SE710
Rated frequency range	50 Hz – 60 Hz
Power consumption, max.	753 VA
Heat generation, max.	2574 kJ/h
Sound pressure (LpAm)	Typical 43 dB(A)
Operating temperature	10°C to 35 °C
Standards	Global : CB, RoHS, WEEE, Europe: CE , Germany: GS

Application Unit AU47M3	(in preparation)
Weight	Approx. 46 Kg
Rated voltage range	100 – 240 V
Network connection options	as described for the basic configuration of SE310 or SE710
Rated frequency range	50 Hz – 60 Hz
Power consumption, max.	2,820 KVA
Heat generation, max.	10152 kJ/h
Sound pressure (LpAm)	Typical 52 dB(A)
Operating temperature	10°C to 35 °C
Standards	Global : CB, RoHS, WEEE Europe: CE Class A (*)

Application Unit AU47M5	
Weight	Approx. 30 Kg
Rated voltage range	100 – 240 V
Network connection options	as described for the basic configuration of SE310 or SE710
Rated frequency range	50 Hz – 60 Hz
Power consumption, max.	2,36 kVA
Heat generation, max.	8406 kJ/h
Sound pressure (LpAm)	Typical 47,4 dB(A)
Operating temperature	10°C to 35 °C
Standards	Global : CB, RoHS, WEEE, Europe: CE Class A (*)

Application Unit AUQ38E (as well DBU38E)	
Weight	Configuration dependant max. 110 kg
Rated voltage range	220 - 240 V
Network connection options	Every AUQ38E contains 4 power supplies with 16A plugs IEC C20 and 2 power supplies with 10A IEC C14. These modules are connected to the mains via two 1-phase socket strips with 32A IEC320 plugs (blue) or via one to two 3-phase socket strips with 32A IEC320 plugs (red). Further socket strips are required for expansion with additional AUQ38E.
Rated frequency range	47 Hz – 63 Hz
Power consumption, max.	5,900 W
Heat generation, max.	21240 kJ/h
Sound pressure (LpAm)	65 dB
Operating temperature	5°C to 40 °C
Standards	Global : CB, RoHS, WEEE Europe: CE Class A (*)

(*) Information on the operation of Class A products in residential areas:
The SE servers and their components are Class A products. They can cause interference when used in residential areas. If necessary, the user must take special measures to reduce electromagnetic emissions in order to avoid interference when receiving radio and television broadcasts.

More information

Fujitsu Products, Solutions & Services

In addition to the Fujitsu BS2000, Fujitsu offers a full portfolio of other computing products.

Products
http://www.fujitsu.com/de/products/
- Storage-systems: ETERNUS®
- Server: PRIMERGY®, PRIMEQUEST®, Fujitsu SPARC® M12
- Client-Computing Devices: LIFEBOOK®, STYLISTIC®, ESPRIMO®, FUTRO®, CELSIUS®
- Peripheries: Displays, Accessories
- Software
- Network

Product Support Services with different service levels agreements are recommended to safeguard each product and ensure smooth IT operation.

Solutions
http://www.fujitsu.com/de/solutions/
The Fujitsu solutions combine reliable Fujitsu products with the best in services, expertise and worldwide partnerships.
Fujitsu's Solutions include parts of one or more activity groups (e.g., planning, implementation, support, management, and training services) and are designed to solve a specific business need.
Infrastructure Solutions are customer offerings created by bringing Fujitsu's best products, services and technologies together with those from partners to deliver benefit to our customers' businesses.
Industry Solutions are tailored to meet the needs of specific verticals.
Business and Technology Solutions provide a variety of technologies developed to tackle specific business issues such as security and sustainability, across many verticals.

Services
http://www.fujitsu.com/de/services/
Several customizable Fujitsu Service offerings ensure that IT makes a real difference and delivers true business value. We do this by leveraging our extensive experience in managing large, complex, transformational IT programs to help clients in planning, delivering and operating IT services in a challenging and changing business environment.

Application Services support the development, integration, testing, deployment and on-going management of both custom developed and packaged applications. The services focus on delivering business and productivity improvements for organizations.
Business Services respond to the challenge of planning, delivering and operating IT in a complex and changing IT environment.
Managed Infrastructure Services enable customers to deliver the optimal IT environment to meet their needs – achieving high levels of IT service quality and performance for data centre and end user environments.

Fujitsu green policy innovation

https://www.fujitsu.com/de/about/local/social-responsibility/environment-care/
Fujitsu Green Policy Innovation is our worldwide project for reducing burdens on the environment. Using our global expertise, we aim to resolve issues of environmental energy efficiency through IT.

Green Policy Innovation

More information

Learn more about Fujitsu, please contact your Fujitsu sales representative, Fujitsu business partner, or visit our website:
http://www.fujitsu.com/de

Copyright

Disclaimer

Publisher
Fujitsu Technology Solutions GmbH
Mies-van-der-Rohe-Str. 8, 80807 Munich, Germany
Website: www.fujitsu.com/de
2019-11-14, EM DE