FUJITSU

Datasheet
Fujitsu BS2000/OSD
SQ210 business server

The powerful mainframe
for the entry- and medium performance range
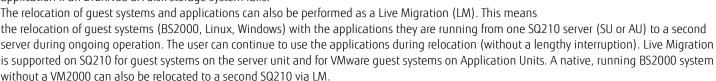
Short description

The combination of proven BS2000/OSD functionality with high-end Intel® Xeon® MP processors results in the new Business Server SQ210, an ideal server to run BS2000/OSD applications economically.
The new server generation SQ210 extends the application range of SQ servers through a intensely increased monoprocessor performance and an enlarged overall performance range of up to 1750 RPF.
OSD Extended Configuration OSD/XC is the BS2000/OSD operating system package for Business Servers in the SQ server line. The Business Servers SQ210 are supported by BS2000 OSD/XC V9.0 which consists of the operating system BS2000/OSD-BC V9.0 and several system-related software products.
VM2000 version V10.0 supports multiple BS2000 guest systems at the SQ210 Server Unit. The SQ210 base software also enables the optional use of Linux and Windows Server® guest systems parallel to BS2000/OSD. Besides these guest systems on the Server Unit, SQ210 also incorporates additional optional Application Units to run Linux and WIndows applications native or under VMware vSphere.

In order to further increase the availability of SQ210 servers a high-availability configuration with two SQ servers and/or two ETERNUS DX disk storage systems can be set up. Hardware and software components for coupling redundant SQ servers enable the simple and fast relocation of guest systems with the applications they are running to a second server. The mutual monitoring of the SQ210 Business Server during operation enables automatic restart of monitored guest systems and applications on the backup system if a server fails. Furthermore, it is possible to switch to a mirrored storage system without a lengthy interruption of the application if an ETERNUS DX disk storage system fails.
The relocation of guest systems and applications can also be performed as a Live Migration (LM). This means the relocation of guest systems (BS2000, Linux, Windows) with the applications they are running from one SQ210 server (SU or AU) to a second server during ongoing operation. The user can continue to use the applications during relocation (without a lengthy interruption). Live Migration is supported on SQ210 for guest systems on the server unit and for VMware guest systems on Application Units. A native, running BS2000 system without a VM2000 can also be relocated to a second SQ210 via LM.

The browser-based user interface of the SQ Manager is used for the administration of the whole SQ210 Business Server including the control of the high-availability and live-migration functionality. It provides both SQ specific functions and the use of established administration GUIs for guest systems and Application Units.

Sixteen models are configured as complete HW/SW packages with all components required to support comfortable and efficient BS2000 operation.
In addition to hard disks connected directly to the SQ210 via SAS RAID controller, and a very compact tape cartridge unit for automated backup, storage systems of the ETERNUS DX400, DX400 S2, DX8000 and DX8700 S2 family can be connected via fibre channel. For Backup and archiving of SQ210 data ETERNUS CS High End is offered.
Also via fibre channel EMC's Symmetrix disk systems and QUANTUM's MTC libraries (SCALAR i500, SCALAR i6000) are supported with SQ210.

Green IT

Features and benefits

Main features	Benefits
Performance range ■ BS2000/OSD servers in performance range 12 to 1750 RPF	■ Business flexibility due to easy upgrading, i.e. performance as required
Compatibility ■ Full object compatibility for all existing BS2000/OSD applications on basis of x86 processor technology	■ Investment protection for existing customer applications via modern and open system platform
Complete package ■ All necessary components pre-configured and tested as complete package in a cabinet	■ Low operating costs, good automation, low administration and operation costs
Redundancy ■ Selected redundant components and E2E BS2000 quality process (pre-installation, quality assurance, service concept) Intelligent error correction routines in SQ210 firmware	■ High-levels of system stability and constant availability of customer applications
Application Units ■ Use of Linux and Windows applications running on high end x86 servers integrated into SQ210	■ The use of redundant components and the comprehensive quality assurance and service concepts of SQ210 result in very stable customer applications running on the Application Units. ■ The flexible sizing and the use of operating systems (native or virtualized) allow the Application Units to be ideally adapted to the applications that are to run. ■ Integration in the SQ Manager enables the customer to have a complete overview of all the units, clusters and VMs in the SQ210 server.
Guest systems ■ Use of several BS2000/OSD, Linux and/or Windows guest systems on one SQ210 server. The use of VMware vSphere 5 enables several guest systems to be used in parallel on the Application Units.	■ Minimum administration costs for applications with components in various operating systems running on one server with SQ210. ■ Evident cost savings through consolidation of various applications on one server. ■ Green IT, reduced resource consumption ■ Fast provision of new applications and dynamic performance allocation as required.
High availability (HA) and live migration (LM) ■ The new HA and LM functions of the SQ210 Business Servers permit simple, partially automatic or interrupt-free relocation of BS2000, Linux and Windows guest systems to a second server.	■ Simple and fast switchover of the guest systems configured for this purpose together with their applications to a replacement system, e.g. for maintenance work or with failure of a server. ■ If a server, an Application Unit or the disk storage system fails, these guest systems with their applications can be automatically restarted on the second server. ■ Manual adaptation of the load to the resources of two servers during ongoing operation via Live Migration. ■ Live Migration enables interrupt-free maintenance and updates for hardware and firmware through the manual switchover and relocation of the guest systems with the applications they are running.

Basic server data

Business Server SQ210

Model	BS2000 CPUs (cores)	I/O-CPUs (cores) of basic configuration	Processor chips / cores in basic config.	Main Memory [GB] Sum 1) / guest systems 2)	Max. Main Memory [GB] 1) basic config. / with 4 process.
SQ210-10A	1	4	2 / 16	16 / 11,2	256 / 512
SQ210-10B	1	4	2 / 16	16 / 11,2	256 / 512
SQ210-10C	1	4	2 / 16	16 / 11,2	256 / 512
SQ210-10D	1	4	2 / 16	16 / 11,2	256 / 512
SQ210-10E	1	4	2 / 16	16 / 11,2	256 / 512
SQ210-10F	1	4	2 / 16	16 / 11,2	256 / 512
SQ210-20A	2	4	2 / 16	16 / 11,2	256 / 512
SQ210-20F	2	4	2 / 16	16 / 11,2	256 / 512
SQ210-30F	3	4	2 / 16	32 / 22,4	256 / 512
SQ210-40F	4	4	2 / 16	32 / 22,4	256 / 512
SQ210-50F	5	4	2 / 16	32 / 22,4	256 / 512
SQ210-60F	6	4	2 / 16	32 / 22,4	256 / 512
SQ210-80F	8	6	3 / 24	48 / 33,6	384 / 512
SQ210-100F	10	6	3 / 24	48 / 33,6	384 / 512
SQ210-120F	12	6	3 / 24	48 / 33,6	384 / 512
SQ210-160F	16	8	4 / 32	64 / 44,8	512 / 512

1) The installed physical memory has the double capacity. The second half is used for memory mirroring and isn't incorporated in these figures.
2) Around 70% of memory is available for BS2000 and Linux-/Windows guest systems . Remaining memory is used by SQ210 firmware.
     Some BS2000 memory is used to accelerate BS2000 applications with the Just in Time translator JIT.

Processors

Type	Intel® Xeon® E7-8837, 8 cores
Level-2 Cache	24 MB
Frequency	2,67 GHz

Main Memory
16 GB to 512 GB, mounted on 4 to 8 memory boards
built of 4 GB-, 8 GB- or 16 GB-DDR3 dimms.
Advanced ECC, Memory Mirror

Disks, drives and others
- 4 integrated RAID SAS 2,5" system disks with 450 GB each, mirrored in pairs, hot plug
- LTO-4 drive
- DVD-RW writer
- 8 hot plug fans (redundant)
- 4 hot plug power supplies (redundant)

Interfaces and onboard controllers
for server internal use

LAN	4 x 10/100/1000 Mbit/s ethernet for SQ210 internal LAN connections and link-up to the admin LAN
VGA	For connection to KVM
SAS	For LTO-4 drive
SATA	For DVD writer

SAS RAID with BBU	For system disks
iRMC S2	Integrated remote management controller, IPMI 2.0 compatible

I/O Slots *)
- 4x PCI-Express 2.0 x8,
- 3x PCI-Express 2.0 x4, (2x ½ length, 1x ¾ length)
- 1x PCI-Express 2.0 x16
- 2x PCI-Express x4 (2x half height)
- *) One slot is used for the controller of the internal LTO-4 drive

Supported PCIe Controllers

Fibre Channel	2 Port, 8 Gbit/s
Ethernet	10/100/1000 Mbit/s 2 Port Cu
Ethernet	10/100/1000 Mbit/s 4 Port Cu
Ethernet	10/100/1000 Mbit/s 1 Port LC
Ethernet	10 Gbit/s 2 Port LC
SAS RAID	8 Port 512 MB LSI with BBU for SQ disk box
SAS	for SQ MTC Changer (LTO-4)

Management and Remote Service Console (MARS)

- Intel® Xeon® E5-2620 processor, 6 cores
- 2x 4 GB main memory (mirrored)
- 2 integrated RAID SAS 2,5" system disks with 300 GB each, mirrored, hot plug
- DVD RW writer
- 6 hot plug fans (redundant)
- 2 redundant power supplies with 450 W each
- Interfaces and controllers
  for server internal use only

LAN	2 x 10/100/1000 Mbit/s ethernet onboard and 10/100/1000 Mbit/s 2 port Cu for SQ210 internal LAN-connections and link-up to the admin LAN
VGA	For connection to KVM
SATA	Used by DVD writer
SAS RAID	Used by internal system disks
iRMC S2	Integrated remote management controller, IPMI 2.0 compatible

SQ210 system rack

- 19" rack with 42 U height and 1050 mm depth,
  9 U used for components of the SQ210 basic configuration
- Alternatively, a basic network (BNET) or an extended network (ENET) for the internal, redundant connection of the SQ210 components.
  BNET: 2 LAN switches unmanaged (1 Gbit/s, 16 ports)
  ENET: 2 LAN switches managed (1 Gbit/s, 48 ports);
  ENET is required for private network connections (PNET) within an SQ server and between two SQ servers, which are required for HA and LM. ENET also enables the configuration of faster, more secure and more redundant network connections for exchanging application data between the SU and AUs of the SQ server.
- Keyboard/Video/Mouse switch, analogous, 8 ports
- ISDN modem for teleservice (optional),
  alternative: remote service with AIS Connect
- Rack console
  Fold-out 17" TFT-Monitor,
  Resolution up to 1280x1024 (SXGA), 32 Bit color depth,
  Keyboard US/English, Touchpad

Optional SQ210 Components
(see separate data sheets)

- Storage subsystem ETERNUS JX40 (SAS RAID)
- Magnetic tape changer ETERNUS LT40 (1 – 2 drives, LTO4/SAS, LTO4/Fibre Channel or LTO5/Fibre Channel)
- Online UPS (APC) 5 or 10 KVA with external runtime extensions

SQ210 Application Unit (optional)
High-End X86-Server

- Intel® 7500-chip set
- 2 - 4 Intel® Xeon® processors of E7 series with 6 to 10 cores
- 8 – 1024 GB registered DDR3 dimms, ECC,
  optional Memory-Mirror

- DVD-RW drive
- Integrated Remote Management Controller iRMC S2
- 8 fans, redundant
- 4 power supplies, redundant
- 10 PCI express Slots
- 8 2,5" Slots for disk drives (SSD, SATA or SAS)
- 1 5,25" Slot for back-up drives
- Operating system SUSE SLES 11, Windows Server 2008 or 2012, different guests with Vmware vSphereV5.0 or V5.1. Other OS on request, e.g. RHEL, MS Hyper-V or Citrix XenServer

SQ210 SAN Integration Package (optional)

- Two SAN Switches Brocade 300 with SFPs and Fibre Channel cables, connecting the Server Unit and all Application Units with the switches
- Installation into SQ210-Rack
- Configuration using Gateway-Modus
- StorMan software to display and configure external disk systems connected with SQ210

Technical data of the switches: see data sheet of Brocade 300.

SQ210 High Availability and Live Migration (optional)

- Configurable switchover from guest systems of the server unit (except for BS2000-Monitor-VM) and the Application Unit to a replacement system - automatically if a server fails or manually, e.g. for maintenance or load transfer.
  Relocation of a native operated OSD/XC system to a second SQ server is also possible.
- Depending on the configuration, an application restart is performed by the user using automatic start-up scripts, or manually.
- Automatic switchover to a mirror system is also offered in case the primary storage system fails. If both system components fail, a common storage and server switchover can be started manually.
- Live Migration for interrupt-free maintenance/updating for hardware and firmware or in order to adapt the load to the resources of two servers in ongoing operation.
- Administration of the HA / LM function (inclusion / removal of guest systems in HA monitoring, HA/LM implementation, information functions) takes place in the SQ Manager.
- Prerequisites for HA: Two SQ200 or SQ210 servers with an extended internal ENET network and with the same peripherals as well as the software package HAPS,
  where necessary VM2000 V10.0 for the BS2000 guest systems of the server unit,
  where necessary VMware Vspere V5.0 or V5.1 for the guest systems of the Application Unit.
- If only one SQ210 server is available, BS2000 systems and applications can be switched to a second storage system using ENET and the software HAPST.
- Live Migration has the same requirements as HA, but always requires two SQ210 Business Servers.

Software

SQ210 software basis (part of the SQ210 server)	X2000 V5.3 and MARS V2.0 (incl. SQ Manager for SQ210 administration)
Operating system and related software for the Server Unit (to be ordered in parallel)	■ BS2000: OSD/XC V4.1 / V9.0 (contains OSD-BC V8.0 / V9.0)* ■ Linux: SUSE SLES 10 SP4 or SLES 11 SP1 and SP2 ■ Windows Server 2008 R2 or 2012
Operating system and related software for the Application Unit (to be ordered in parallel)	■ Linux: SUSE SLES 11 (32 / 64 bit) ■ Windows Server 2008 R2 or 2012 ■ VMware vSphere V5.0 or V5.1 ■ Server management via SQ Manager and ServerView Suite

*) SQ210-specific functions, such as HA, LM or more than 8 CPUs in BS2000, cannot be used under OSD/XC V4.1 and VM2000 V9.5.

Installation data

Business Server SQ210
SQ210 System Cabinet [1]

Width (transport width)	700 (800) mm
Depth (transport depth)	1050 (1200) mm
Height (transport height)	2003 (2150) mm
Maintenance area	front: 900 mm rear: 800 mm side (left/right): 800 mm each side
Weight [2]	as of ca. 250 kg (depending on system configuration)
Rated voltage	230 V
Optional power connections	two 1-phase connections with blue CEE plug 16A or one 3-phase connection CEE 3x16A or one 1-phase connection CEE 16A and one 1-phase permanent connection 32 A (for UPS) Additional connections may be required for extension components in the SQ rack.
Power cable length	Power cable, 4 m long
Frequency	50/60 Hz
Power consumption, max. [2]	1350 – 1700 VA (load-dependent)
Heat generation, max. [2]	4900 – 6200 kJ/h (load-dependent)
Operating temperature	10℃ to 35 ℃
Standards	Safety: GS, EN 60950-1, EN 60529 - IP20 Compliance: CE class A, FCC class A CB, RoHS, WEEE

1) Data on optional SQ210 extensions and additional storage components which can be integrated in the SQ210 cabinet are available in different data sheets
2) These data include SQ210-160F with all components of the basic configuration (Server unit, MARS, rack console, console switch, LAN switch)

Application Unit

Weight	Up to 46 kg, depending on the configuration
Rated voltage	230 V
Optional power connections	two 1-phase connections with blue CEE plug 16A or one 3-phase connection CEE 3x16A or one 1-phase connection CEE 16A and one 1-phase permanent connection 32 A (for UPS)
Frequency	50/60 Hz
Power consumption, max.	1790 W
Heat generation, max.	6444 kJ/h
Operating temperature	10℃ to 35 ℃
Standards	GS CE Class A CB, ROHS, WEEE

More information

Fujitsu platform solutions

In addition to Fujitsu BS2000/OSD, Fujitsu provides a range of platform solutions. They combine reliable Fujitsu products with the best in services, know-how and worldwide partnerships.

Dynamic Infrastructures

With the Fujitsu Dynamic Infrastructures approach, Fujitsu offers a full portfolio of IT products, solutions and services, ranging from clients to datacenter solutions, Managed Infrastructure and Infrastructure as a Service. How much you benefit from Fujitsu technologies and services depends on the level of cooperation you choose. This takes IT flexibility and efficiency to the next level.

Computing products

www.fujitsu.com/global/services/computing/
- PRIMERGY: Industrial standard server
- SPARC Enterprise: UNIX server
- PRIMEQUEST: Mission-critical IA server
- ETERNUS: Storage system
- BS2000/OSD mainframes

Software

www.fujitsu.com/software/
- Interstage: Application infrastructure software
- Systemwalker: System management software

More information

Learn more about Fujitsu BS2000/OSD SQ210 business server, please contact your Fujitsu sales representative, or visit our website.
http://www.fujitsu.com/fts/products/computing/servers/bs2000/business/sq210/index.html

Fujitsu green policy innovation

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