FUJITSU Software BS2000 X2000

Version 6.4A SP1
March 2021

Release Notice

1 General information

This Release Notice is a summary of the major extensions, dependencies and operating information about the delivery components of the FUJITSU software
*1 BS2000 X2000 V6.4A SP1.
*1 Together with the Linux operating system, X2000 V6.4A SP1 serves on the Intel
*1 x86_64 architecture based Server Units SU300B, SU310 and SU320 as the carrier system for BS2000.

*1 X2000 V6.4A SP1 offers the functions for operation and administration of the hardware for the BS2000 OSD/XC operating systems.

*1 **The contents correspond to the release level of March 2021.**

*1 Changes to release level November 2020 are marked with *1.

The Release Notice is shipped on the product delivery medium.

The current release corresponds to the following delivery release:

*1 X2000 V6.4A0304 Release 03.2021

The following Release Notices must also be taken into consideration for
*1 X2000 V6.4A SP1:
*1
- M2000 V6.4A SP1
- OSD/XC V10.0, OSD/XC V11.0B
- VM2000 V11.5A

This and other current Release Notices are on the SoftBooks DVD and are also available online: https://bs2manuals.ts.fujitsu.com/.

If one or more previous upgrades are skipped when this product version is used, then the information from the Release Notices (and README files) for these previous versions must also be taken into account.

1.1 Ordering

*1 The software X2000 V6.4A SP1 is supplied preinstalled as a component of a SE Server with SU x86 and cannot be ordered separately.

1.2 Delivery

The software X2000 is part of a SE Server with SU x86 and is either supplied preinstalled on the Server Units or will be installed on an already delivered SU x86 by a FUJITSU service technician.

*1 The X2000 V6.4A SP1 files are delivered in line with the hardware delivery as DVD media.

1.3 Documentation

The following manuals are part of the SE server documentation:

- SE specific manuals which describe concepts and the operation of a server of the SE series:
  - Fujitsu Server BS2000 SE Series Administration and Operation
  - Fujitsu Server BS2000 SE Series Quick Start Guide
  - Fujitsu Server BS2000 SE Series Security Manual

- White paper
  - Fujitsu Server BS2000 SE Series Cluster Solutions for SE Server

- Operating manual Fujitsu Server BS2000 SE series comprising the following modules
  - Fujitsu Server BS2000 SE Series Basic Operation Manual
  - Fujitsu Server BS2000 SE Series Operation Manual Server Unit /390
  - Fujitsu Server BS2000 SE Series Operation Manual Server Unit x86
  - Fujitsu Server BS2000 SE Series Operation Manual Additive Components

*1 These manuals are on the documentation DVD of the delivered Media Set.

The documentation is also available on the internet under https://bs2manuals.ts.fujitsu.com/.
The current versions of this and other Release Notices are also available there.

The BS2000 documentation is available on DVD, in German and English, under the title BS2000 SoftBooks.

The corresponding HW documentation is required in order to use the HW peripheral devices.

2 Software extensions

*1 X2000 V6.4A SP1 is a further development of the X2000 version V63A and offers the following major extensions and enhancements compared to the previous version:

- **Rebasing on SLES 12 SP5**
  The basic system of the Linux appliance X2000 was rebased on SUSE Linux Enterprise Server 12 SP5.

*1 - **Support of a new high end x86-64 system as HW base for SU320**
*1 As new HW base for SU x86 a high end x86-64 server equipped with Intel®
*1 Xeon® Gold 6328H processors is supported (model name:
*1 "SE SERVER SU320 M1").

- **Shell-level Administration commands in X2000**
  For the management of BS2000 systems and the necessary BS2000 devices, administrative commands are available in X2000 at the shell level:
  - Device configuration via bs2Conf, bs2devState, bs2devShow, showDiskCabinets, showImportableDisks and showImportableTapes.
  - Administration of BS2000 systems via vmManage

- **Support of LTO-8 tape drive**
*1 LTO-8 drives are supported in the ETERNUS LT140 S4 Tape Library.

3 Technical information

3.1 Resource requirements

Main memory requirements:

Model type SU300B

SU x86 model	BS2000 processors	Main memory (GB) basic configuration / guest systems / BS2000 without JIT	PCIe slots
SU300B-10A	1	32 / 24 / 14,4	4
SU300B-10B	1	32 / 24 / 14,4	4
SU300B-10C	1	32 / 24 / 14,4	4
SU300B-10D	1	32 / 24 / 14,4	4
SU300B-10E	1	32 / 24 / 14,4	4
SU300B-10F	1	32 / 24 / 14,4	4
SU300B-20A	2	64 / 48 / 28,8	10
SU300B-20F	2	64 / 48 / 28,8	10
SU300B-30F	3	64 / 48 / 28,8	10
SU300B-40F	4	64 / 48 / 28,8	10
SU300B-50F	5	64 / 48/ 28,8	10
SU300B-60F	6	64 / 48 / 28,8	10
SU300B-80F	8	64 / 48 / 28,8	10
SU300B-100F	10	96 / 80 / 48	10
SU300B-120F	12	96 / 80 / 48	10
SU300B-160F	16	96 / 80 / 48	10

Model type SU310

SU x86 modell	BS2000 processors	Main memory (GB) basic configuration / guest systems / BS2000 without JIT	PCIe slots
SU310-10R	1	128 / 112 / 67	6
SU310-10	1	128 / 112 / 67	6
SU310-20	2	128 / 112 / 67	6

*1 **Model type SU320**

*1
*1
*1
*1

SU x86 model	BS2000-processors	Main memory (GB) basic configuration / guest systems / BS2000 without JIT	PCIe slots
SU320-120	12	512 / 496 / 298	7

*1

The required main memory depends on the customer's configuration, especially for the used applications and the number of guest systems.

Calculation base for computing the main memory needed for BS2000 guest systems:
Approximately 16 GB is occupied by the firmware of the SU x86. The remaining memory can be used for BS2000 guest systems, whereof approx. 40% is required by JIT.

3.2 SW configuration

*1 **BS2000 OSD/XC in native and VM2000 operation mode on SU300B**

*1 • BS2000 native
*1 ○ OSD/XC V11.0B, V10.0A

*1 • VM2000 V11.5
*1 ○ OSD/XC V11.0B as monitor system
*1 ○ OSD/XC V11.0B or V10.0A as guest system

*1 • VM2000 V11.0
*1 ○ OSD/XC V11.0B or V10.0A as monitor system
*1 ○ OSD/XC V11.0B or V10.0A as guest system

*1 • Prerequisites for Live Migration (LM):
*1 ○ OSD/XC V11.0B or V10.0A
*1 ○ VM2000 V11.5 in VM200 mode

*1 The support is supplied as of service pack SP20.2 each.

*1 **BS2000 OSD/XC in native and VM2000 operation mode on SU320 and SU310**

- BS2000 native
  - OSD/XC V11.0B

- VM2000 V11.5
  - OSD/XC V11.0B as monitor system
  - OSD/XC V11.0B or V10.0A as guest system

- Prerequisites for Live Migration (LM):
  - OSD/XC V11.0B or V10.0A
  - VM2000 V11.5 in VM2000 mode

*1 The support is supplied as of service pack SP20.2 each.

Linux is not released for use on X2000
The Linux appliance X2000 is a scaled-down Linux systems exclusively designed to run on Server Units. This is why the use of Linux on X2000 is not released for customer applications.

3.3 Product installation

The SE Server is delivered with X2000 pre-installed on the Server Units x86.
Any new correction versions of X2000 that may be required are provided as part of the hardware service contract and are installed by the service technician responsible for you.

3.4 Product use

- The operation of X2000 takes place via a web-based GUI called SE Manager running on the Management Unit of the SE Server. The remote operation and administration takes place via PC workplaces that can access the SE Manager on the Management Unit via a web browser.
  For information about supported browsers see release notice for
*1 M2000 V6.4A SP1.

- Additionally to the terminals integrated in SE Manager, the connection to BS2000 console and BS2000 dialog for accounts of the roles Administrator, Operator and BS2000 Administrator is possible via the commands bs2Console and bs2Dialog.
  However, for the Operator and BS2000 Administrator roles, these commands can only be called as "remote command" through the SSH client PuTTY, because these roles do not have shell access..
  The use of PuTTY is described in the manual "FUJITSU Server BS2000 SE Administration and Operation".

- Administration commands in X2000 at shell-level
  For a barrier-free administration of the Server Unit, access to the X2000 shell of the SU for the administration account admin can be activated by the service.
  The shell access from the customer network can only be made via a connection to the Management Unit (preferably via PuTTY; see above). The command “ssh –l admin su<nr>-se<ID>.senet“" can then be used to switch to the X2000 shell of the SU with the fixed account "admin" (example: The change to the first SU x86 in the SE Server with the ID 1 is done by means of "ssh -l admin su1-se1.senet").
  A list of available commands is output by the "cli_info" command.
  If necessary, the service provides a detailed description of the commands.

- BS2000 hostname:
  The minimum length for the bs2000 hostname is 4 characters.
  The following special characters are supported in principle: #, @
  We recommend not to use special characters.

- Dynamic performance control
  For the use of dynamic performance control, the key "Performance quota" must be installed by the service technician responsible for you.

- ETERNUS DX100 S4
  Connection is only supported with single path FC direct connection (not via switch) without SHC-OSD. Concerning the port configuration in the storage subsystem, mode "Fabric" has to be chosen as connection mode. For other settings see hints below.

- The following maximum configuration is supported for a SU x86 in a SE Server:
  - a maximum of 2048 LUNs on one HBA port
  - a maximum of 2048 LUNs on one RAID controller port
  - a maximum of 8192 BS2000 disks
  - a maximum of 16384 paths may be visible
  - a maximum of 256 MTC devices
  - a maximum of 8 tape devices emulated on file/CD/DVD
  - an overall maximum of 16384 SCSI LUNs per sever unit

  Hints:
  - In order to avoid the maximum of 8192 BS2000 disks or 16384 visible paths respectively being exceeded, disks that are not required should be made invisible in the ETERNUS or Symmetrix system by LUN masking / LUN mapping.
  - Tape devices must be configured exclusively at one Server Unit and must not be accessible by a second Server Unit simultaneously. This is to be ensured by suitable actions like LUN masking / mapping.
  - Disks and tapes should be connected to different HBA ports of the SU x86.
  - Using BS2000 disks of an ETERNUS disk storage system needs the host response profile "BS2000" being activated. Additional information can be found in the document "FUJITSU Storage ETERNUS DX, ETERNUS AF Configuration Guide -Server Connection-" which is available under https://sp.ts.fujitsu.com/dmsp/Publications/public/p3am-5672-en.pdf.

  - The number of available licenses is displayed in SE Manager's main pages for administering BS2000 devices. Detailed license information is displayed in a tool tip.

- Inhomogeneous SE Cluster
  An inhomogeneous SE Cluster (cluster with one Server running V6.3A and
*1 one Server running V6.4A SP1) is released limited in time for version upgrading on existing customer systems.

- Live Migration in a SU x86 Cluster
  In a SU x86 Live Migration is released only between two SUs of the same model line.

- No Live Migration in an inhomogeneous SU x86 Cluster:
*1 In an inhomogeneous SU x86 Cluster (X2000 V6.3A - X2000 V6.4A SP1) Live Migration is not possible.

3.5 Obsolete (and discontinued) functions

- Xen guest systems (Xen VMs) are no longer supported. The use must there-
*1 fore be discontinued before upgrading to X2000 V6.4A SP1.

3.6 Incompatibilities

- none -

3.7 Restrictions

- **Jumbo frames on older 10 Gbps LAN controllers**
  With older 10 Gbps LAN controllers (e.g. l82599* chipsets or X540 boards), there may be performance degradation when using jumbo frames. In this case, we therefore recommend keeping the Ethernet MTU size at the standard of 1500 bytes.

- **VM2000**
  Calling the VM2000 command pair /HOLD-VM and /RESUME-VM should be avoided because the guest system might abort abnormally after /RESUME-VM (SETS).

*1 - **Reboot of the Server Unit**
*1 When the Server Unit is rebooted, the hardware monitoring daemon is not
*1 started correctly sporadically. If necessary, this daemon must be restarted by
*1 A member of Fujitsu Service.
*1 Therefore, a restart of the Server Unit should only be done in coordination
*1 with Fujitsu Service.

3.8 Procedure in the event of errors

For successful diagnostics and elimination of software problems, sufficient error documentation must be created or saved as soon as possible.
If possible, error report documentation should be supplied in the form of files so that it can be analyzed with diagnostic tools. For reproducible errors the user should include detailed information on how to generate the error condition.

Creating X2000 diagnostic data

In X2000:
If an error situation occurs, the generation of diagnostic data can be initiated by the administrator or operator via the SE Manager on the Management Unit by way of the "Diagnostics" tab of the menu
Hardware -> Units (SEnnn) -> <Name> (SU3nn) -> Service -> Diagnostics

The file can either be downloaded or sent directly via File Transfer by a member of Fujitsu Service using AIS Connect.

In case of problems which are visible in SE Manager depending on the situation the following diagnostic data should be created:
- meaningful screenshots
- Relevant output at browser's console (text copy or screenshot)

*1 The release note for M2000 V6.4A SP1 contains additional information about creating diagnostic data in SE Manager.

In BS2000:
- SLED (in case of BS2000 system crash or if the BS2000 system locks up)
- for input/output problems or device error messages HERSFILE and possibly IOTRACE

4 Hardware requirements

*1 X2000 V6.4A SP1 is released for the x86 core technology based Server Units
*1 SU300B, SU310 and SU320 of the SE Server series.

5 Firmware levels

The following minimum firmware levels should be used on the Server Units x86 in BS2000 SE Servers. They are installed during system installation in the factory.

Any new firmware levels that may be required are provided as part of the hardware service contract and installed by the service technician responsible for you.

*1 SU300B with HW base RX4770 M3

*1	**Component**	**FW version**
*1	BIOS	V5.0.0.11 - R1.21.0
*1	iRMC Firmware	9.62F sdr03.22
*1	SAS RAID Ctrl PRAID EP420i	4.680.00-8417 - 1.0.0
*1	SAS RAID Ctrl PRAID EP420e	4.680.00-8417 - 1.0.0
*1	PSAS CP400e FH	16.00.00.00
*1	Fibre Channel LPe12002	2.02A5
*1	Fibre Channel LPe16002	12.4.243.11
*1	Fibre Channel LPe31002	12.6.182.8

SU 310 with HW basis RX4770 M5

	Component	**FW version**
*1	BIOS	V5.0.0.14 - R1.24.0
	iRMC Firmware	02.60P sdr03.12
	SAS RAID Ctrl PRAID EP420i	4.680.00-8417 - 1.0.0
*1	SAS RAID Ctrl PRAID EP540i	51.11.0-3125 - 1.0.2
	Fibre Channel LPe31002 / 32002	12.6.182.8
	LAN PLAN EP X710-DA4 4x10Gb SFP+	7.30-02
	LAN PLAN EP X710-T4 4x10GBASE-T	7.30-02

*1 SU320 with HW base RX4770 M6

Component	**FW version**
BIOS	V1.0.0.0 - R1.6.0
iRMC Firmware	02.60P sdr03.12
SAS RAID Ctrl PRAID EP540i	51.11.0-3125 - 1.0.2
Fibre Channel LPe35002	12.4.243.16
LAN PLAN EP X710-DA4 4x10Gb SFP+	7.30-02
LAN PLAN EP X710-T4 4x10GBASE-T	7.30-02