# Fujitsu Software BS2000 X2000
Version 6.5A SP2
January 2024

# 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
*2 BS2000 X2000 V6.5A SP2.
*2 Together with the Linux operating system, X2000 V6.5A SP2 serves on the Intel x86_64
*2 architecture based Server Unit (SU x86) SU310, SU320, SU330 and SU330B as the carrier system for BS2000.

*2 **The contents correspond to the release level of January 2024.**

*1 Changes to release level May 2023 are marked with *1
*2 Changes to release level July 2023 are marked with *2

The current release corresponds to the following delivery releases:
*2 X2000 V6.5A0305 Release 01.2024

The Release Notice is shipped on the docu CD.

The following Release Notices must also be taken into consideration for X2000
*2 V6.5A SP2:
*2
M2000 V6.5A SP2
BS2000 OSD/XC V11.0B
BS2000 OS DX V1.0
VM2000 V12.0

This and other current Release Notices are 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

*2 The software X2000 V6.5A SP2 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 pre-installed on the Server Units or will be installed on an already delivered SU x86 by Fujitsu service.

*2 The X2000 V6.5A SP2 files are delivered along 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

The documentation is available on the Internet at https://bs2manuals.ts.fujitsu.com/. There you will find both individual manuals and (under the "Softbooks" tab) the ISO image of a DVD with the entire inventory.

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

# 2 Software extensions

X2000 V6.5A is a further development of X2000 V6.4A SP2 and offers the following main extensions and enhancements compared to the previous version:

- **Rebasing on SLES 15 SP4**
  The basic system of the Linux appliance X2000 was rebased on SUSE Linux Enterprise Server 15 SP4.

- **Support of a new high-end x86-64 system as HW base for SU330**
  A high-end x86-64 server with Intel® Xeon® Gold 6328H processors is supported as the new HW basis for SU x86 (model designation “SE SERVER SU330 M1”)

*2 - **Support of a new high-end x86-64 system as HW base for SU330B**
*2 A high-end x86-64 server with Intel® Xeon® Platinium 8444H processors is suppor-
*2 ted as the new HW basis for SU x86 (model designation “SE SERVER SU330 M2”)

- **Security monitoring of the LINUX base**
  During the boot process and at regular intervals, security monitoring is carried out on the LINUX appliance based on the benchmarks published by the Center for Internet Security (CIS). If security gaps are identified, the SecMon component generates a WARNING or CRITICAL event in the SE Manager on the Management Unit and the service center is notified.

- **Open console messages**
  The open console messages for the BS2000 systems are displayed in the SE Manager on the Management Unit.

*2 - **Support of LT140-42U**
*2 The tape library LT140-42U with LTO-7 and LTO-8 drives is supported.

# 3 Technical information

## 3.1 Resource requirements

**Main memory requirements:**

*1 **Model line SU310**

| *1 *1 *1 *1 SU x86 model | BS2000 processors | Main memory (GB) basic configuration / guest systems / BS2000 without JIT | PCIe slots |
|---|---|---|---|
| *2 SU310-10R | 1 | 128 / 96 / 58 | 6 |
| *2 SU310-10 | 1 | 128 / 96 / 58 | 6 |
| *2 SU310-20 | 2 | 128 / 96 / 58 | 6 |

*1 **Model line SU320**

| *1 *1 *1 *1 SU x86 model | BS2000 processors | Main memory (GB) basic configuration / guest systems / BS2000 without JIT | PCIe slots |
|---|---|---|---|
| *2 SU320-120 | 12 | 512 / 480 / 288 | 9 |

**Model line SU330**

| SU x86 model | BS2000 processors | Main memory (GB) *basic configuration / guest systems / BS2000 without JIT | PCIe slots |
|---|---|---|---|
| SU330-10A, -10B, -10C, -10D, -10E, -10F | 1 | 128 /96 / 58 | 9 |
| SU330-20 | 2 | 128 /96 / 58 | 9 |
| SU330-40 | 4 | 128 /96 / 58 | 9 |
| SU330-80 | 8 | 128 /96 / 58 | 9 |
| SU330-120 | 12 | 128 /96 / 58 | 9 |
| SU330-160 | 16 | 128 /96 / 58 | 9 |

* The SU330 can be equipped either with 128GB or 512GB main memory

*2 **Model linie SU330B**

*2
*2
*2
*2

| SU x86 model | BS2000 processors | Main memory (GB) * basic configuration/ guest systems / BS2000 without JIT | PCIe slots |
|---|---|---|---|
| SU330B-10A, -10B, -10C, -10D, - 10E, -10F | 1 | 128 /96 / 58 | 9 |
| SU330B-20 | 2 | 128 /96 / 58 | 9 |
| SU310B-40 | 4 | 128 /96 / 58 | 9 |
| SU310B-80 | 8 | 128 /96 / 58 | 9 |
| SU310B-120 | 12 | 128 /96 / 58 | 9 |
| SU310B-160 | 16 | 128 /96 / 58 | 9 |

*2 * The SU330B can be equipped either with 128GB, 256 GB or 512GB main memory

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:
*2 Approximately 32 GB is occupied by the firmware of the SU x86. The remaining memory can be used for BS2000 guest systems, whereof approx. 40% is re-quired by JIT.

## 3.2 Software configuration

**BS2000 system versions native and VM2000 mode**

- BS2000 native
  - BS2000 OS DX V1.0
  - *2 OSD/XC V11.0B (not on SU330 and SU330B)

- VM2000 V12.0
  - BS2000 OS DX V1.0 as monitor or guest system
  - OSD/XC V11.0B as guest system

- Prerequisites for Live Migration (LM):
  - BS2000 OS DX V1.0 or OSD/XC V11.0B
  - VM2000 V12.0 in VM mode

*2 The support of OSD/XC V11.0B and BS2000 OS DX V1.0 for SU310 and SU320 is sup-
*2 plied as of service pack SP22.2 each.
*2 The support of BS2000 OS DX V1.0 is supplied for SU330 as of service pack SP23.1 and
*2 for SU330B as of service pack SP23.2

**Linux is not released for use on X2000**
The Linux appliance X2000 is a scaled down Linux system exclusively designed to run on the Management Unit of a SE Server. 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 levels for X2000 that may be required are supplied as part of the hardware service contract and are installed by Fujitsu service.

## 3.4 Product use

- SE Manager
  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.

*2 For information about supported browsers see release notice for M2000 V6.5A SP2.

- BS2000 operating using the Linux shell
  In addition to the terminals which are integrated in the SE Manager, the commands bs2Console and bs2Dialog are available in the Linux shell of the Management Unit. If called with suitable parameters these commands open the corresponding terminal instances at the specified Server Unit.
  We recommend to use the SSH-client PuTTY for accessing the shell on the Management Unit. You may use PuTTY as of version 0.72.
  If you use a different tool the functionality of bs2Console and bs2Dialog cannot be guaranteed.
  The use of PuTTY is described in the manual "Fujitsu Server BS2000 SE Administration and Operation".

- Shell commands for the roles operator and BS2000 administrator:
  For accounts of the roles BS2000 operator and BS2000 administrator the connection to BS2000 console, BS2000 dialog and SVP console is possible via the commands bs2Console and bs2Dialog which are intended to be executed as “remote command” in PuTTY (in case of operator accounts depending on the individual rights).
  This also applies to the operator and BS2000 administrator roles as sub-roles of a user-defined role.

- 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 / S5
  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.

- Maximum values for connecting peripheral devices
  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 V6.4A and one
*2 Server running V6.5A) is released.

*1 - Inhomogeneous SU x86 cluster
*2 In an inhomogeneous SU x86 cluster (X2000 V6.4A SP3 - X2000 V6.5A SP2) live
*2 migration is only possible from X2000 V6.4A SP3 to X2000 V6.5A SP2 as target SU.

## 3.5 Obsolete (and discontinued) functions

SW configuration:

- With software updates, a distinction is no longer made between security fixes and hot fixes. Corrections will be provided as an update.

## 3.6 Incompatibilities

**Role concept in SE Manager**

The authorizations of the standard roles BS2000 operator, BS2000 administrator and AU administrator have been reduced due to the more finely graded role concept.
However, the old operator and administrator roles can be recreated by setting up user-defined roles.
In addition, the individual permission for the operator role has been changed:
The console authorization no longer refers to KVP devices, but to BS2000 systems.
In addition, a system-related dialog authorization has also been added.

The manual “SE Series Administration and Operation” contains a detailed description of the roles and the associated tasks

**Changed CLI commands**

The options for the commands bs2Dialog and bs2Console have changed due to the modified authorization model for the BS2000 operator role.
New:

```
bs2Dialog       -s <system> [-u <unit>][-l <loclan>]
bs2Console      -s <system> [-u <unit>] [-m <console>] [-k <kvp>]
```

Old:

```
bs2Dialog       [-u <unit>] -l <loclan>
bs2Console      [-u <unit>] -k <kvp> [-m <console-mn>]
```

## 3.7 Restrictions

*1 - None -

## 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
Service -> Units (SEnnn) -> <Name> (SU3nn) -> 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)

*2 The release notice for M2000 V6.5A SP2 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

*2 X2000 V6.5A SP2 is released for the x86 core technology based Server Units
*2 SU310, SU320, SU330 and SU330B of the SE Server series.

# 5 Firmware levels

**Firmware levels of the Server Unit x86 (minimum 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 installed by Fujitsu service.

*1 SU310 with HW base RX4770 M5

| *1 | Component | FW version |
|---|---|---|
| *2 | BIOS | V5.0.0.14 - R1.39.0 |
| *2 | iRMC | 03.57P_SDR03.28 |
| *2 | SAS RAID Ctrl PRAID EP420i | 4.680.00-8561 |
| *2 | SAS RAID Ctrl PRAID EP540i | 5.230.00-3817 |
| *2 | Fibre Channel LPe31002 / 32002 | 14.0.639.18 |
| *2 | LAN PLAN EP X710-DA4 4x10Gb SFP+ | 9.20 |
| *2 | LAN PLAN EP X710-T4 4x10GBASE-T | 9.20 |

*1 SU320 with HW base RX4770 M6

| *1 | Component | FW version |
|---|---|---|
| *2 | BIOS | V1.0.0.0 - R1.17.0 |
| *2 | iRMC | 03.57P_SDR03.41 |
| *2 | SAS RAID Ctrl PRAID EP540i | 5.230.00-3817 |
| *2 | Fibre Channel LPe35002 | 14.0.639.20 |
| *2 | LAN PLAN EP X710-DA4 4x10Gb SFP+ | 9.20 |
| *2 | LAN PLAN EP X710-T4 4x10GBASE-T | 9.20 |

SU330 with HW base RX4770 M6

| | Component | FW version |
|---|---|---|
| *2 | BIOS | V1.0.0.0 - R1.17.0 |
| *2 | iRMC | 03.57P_SDR03.41 |
| *2 | SAS RAID Ctrl PRAID EP680i | 5.230.02-3723 |
| *2 | Fibre Channel LPe 31002 / 35002 | 14.0.639.18 / 14.0.639.20 |
| *2 | LAN PLAN EP X710- DA4 / -T4 (10Gb SFP+ / 10GBASE-T) | 9.20 |

*2 SU330B with HW base RX4770 M7

| *2 | **Component** | **FW version** |
|---|---|---|
| *2 | BIOS | V1.0.0.0 - R1.6.0 |
| *2 | iRMC | 02.31S_SDR03.18 |
| *2 | SAS RAID Ctrl PRAID EP680i | 5.230.02-3723 |
| *2 | Fibre Channel LPe 31002 / 35002 | 14.0.639.18 / 14.0.639.20 |
| *2 | LAN PLAN EP X710- DA4 / -T4<br>(10Gb SFP+ / 10GBASE-T) | 9.20 |