

# Data Sheet Fujitsu Mainboard D3230-B µATX Classic Desktop Series



Powered by the Intel® H81 Express Chipset supporting DDR3 1600 SDRAM Memory and  $4^{th}$  generation Intel® Core<sup>TM</sup> i3 / i5 / i7 Processors (Socket LGA1150)

#### Chipset: Intel® H81 Expre

Intel<sup>®</sup> H81 Express Chipset

## Processors:

Intel® Core<sup>™</sup> i7 – 4xxx processor series Intel® Core<sup>™</sup> i5 – 4xxx processor series Intel® Core<sup>™</sup> i3 – future gen4 processor series Intel® Pentium® – future gen4 processor series

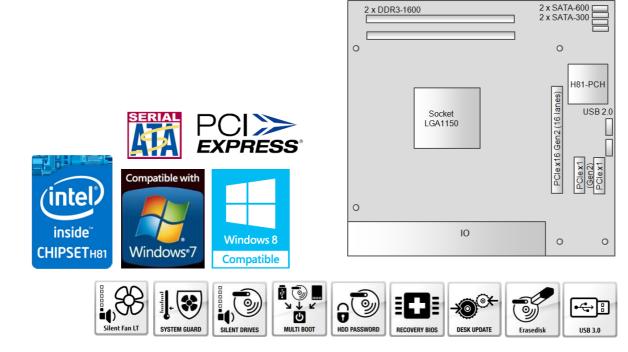
## Memory:

DDR3 1333/1600 SDRAM

## **Product Features:**

Intel® HD Graphics (e.g. HD4600) PCI Express Gen2 Multichannel Audio & Intel GbE LAN onboard USB 2.0 and USB 3.0 onboard





## Features and benefits

Board Size ultra small µATX: 218 x 183 mm

Chipset Intel® H81 Express Chipset

#### Memory

2 DIMM Sockets (1.5V), 1GB - 16GB, Single Channel / Dual Channel DDR3-1333 (CL9) / DDR3-1600 (CL11) SDRAM, unbuffered, no ECC

#### Processor

Intel<sup>®</sup> Core<sup>™</sup> i7 – 4xxx processor series Intel<sup>®</sup> Core<sup>™</sup> i5 – 4xxx processor series Intel<sup>®</sup> Core<sup>™</sup> i3 – future gen4 processor series Intel<sup>®</sup> Pentium<sup>®</sup> - future gen4 processor series Socket LGA1150, max. 95W TDP (For details on supported processors please refer to our website)

#### **Power Specification**

ATX- 24 Pin or ATX- 20 Pin Power Supply required Support for Soft-Off Power Supplies 3.3V Auxiliary Supply Voltage on PCIe Slots (Wake-Up Function) On board CPU Core Voltage Regulator

## Power Supply Requirements

Source	Voltage		Max.Voltage Tolerance	Mainboard Capacitive Load	Max. Mainboard Current
Main Power Supply	+ 12V	0.05A	± 5 %	10.000µF	14A/18A <sup>1)</sup>
	- 12V	0A	± 10 %	500µF	0.3A
	+ 5V	0.2A	± 5 %	10.000µF	10A
	+ 3.3V	0A	± 5 %	6.000µF	2A
Aux. Power	+ 5Vaux	0A	+5 % / -3%	7.000µF	2.5A

<sup>1)</sup> 18A = Surge Current for 20 sec!

## BIOS

AMI Aptio 4.x (UEFI) BIOS

modified and adapted by Fujitsu Technology Solutions; Recovery BIOS, SM-BIOS (DMI), BIOS and CPU Microcode Update, Quick Boot, Logo Boot, Quiet Boot, Plug & Play, Automatic DRAM and PCIe Configuration, BIOS Support for S.M.A.R.T., Advanced Power Management, ACPI S3/S4, Wake on time from S5

#### Security Features

Recovery BIOS, System and BIOS Password, Boot Sequence Control, USB- Port Access Protection, Boot Sector Virus Warning, Write Protection for Flash BIOS, EraseDisk (optional BIOS Feature)

#### Special Features

Silent Fan LT	Independent temperature related processor fan and system fan supervision
System Guard	View Silent Fan LT features
Silent Drives	Noise reduction for optical and hard disk drives
Recovery BIOS	Restores a corrupted BIOS
Desk Update	Simple driver update with Driver&Utilities DVD
Multi Boot	Comfortable boot from any boot device
HDD Password	Access protection for disk drives

## **External Connectors**

Mouse

LAN Audio



#### Graphics

Intel® HD Graphics ( e.g. HD4600, depends on installed processor), DX11.1

## Audio

Realtek ALC671, 5.1-channel, High Definition Audio Codec

## LAN

Intel Clarkville I217V with 10/100/1000 MBit/s,

Wake-on-LAN (WoL) by interesting Packets, Link Status Change and Magic Packet™, PXE Support, BIOS MAC Address Display

#### Drives

2 Serial ATA III 600 Interface (up to 6GBit/s), 2 Serial ATA II 300 Interface (up to 6GBit/s), NCQ, AHCI

Eatures     D3230-B       Chipset     iH81       Board Size     ultra small µAT       VGA / DVI-I / DVI-D / DisplayPort V1.2 / LVDS     ✓  / ✓  /-       Stereo Audio / 5.1 Multichannel Audio     - /-       Buzzer / Int. Speaker Support     - /-       LAN Gbit / 100 Mbit / 10 Mbit     ✓ / ✓ / ✓       LAN ASF / DASH V1.1 / WoL / Boot / iAMT     - /- / / ✓ / ✓       Star / ATA / RAID / eSATA-support     ✓ / - / / ✓ / ✓       FAN monitored PSU <sup>11</sup> / CPU / AUX1 / AUX2     - / ✓ / ✓ / ✓       FAN controlled PSU <sup>11</sup> / CPU / AUX1 / AUX2     - / ✓ / ✓ / ✓       FAN controlled PSU <sup>11</sup> / CPU / AUX1 / AUX2     - / ✓ / ✓ / ✓       FRecovery BIOS / Desk Update / Multi Boot     ✓ / ✓ / ✓       Mecovery BIOS / Desk Update / Multi Boot     ✓ / ✓ / ✓       HDD Password / HDD Encryption / EraseDisk <sup>21</sup> / TPM     ✓ / ✓ / ✓       HDD Password / BIOS Boot Watchdog / OS HW Watchdog     - / ✓       Mainboard operating temperature range (chassis inside)     10°C - 45°C       Miremal Connectors     -     -       DIMM Sockets (DDR3-1600)     2     PCI Express x16 Slot (Gen3) / PCI Express x16 Slot (Gen2)     - / 1       PCI Express x16 Slot (Gen3) / PCI Express x16 S
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Silent Fan / Silent Tan LT / System Guard / Silent Drives   - / ✓ / ✓     Recovery BIOS / Desk Update / Multi Boot   ✓ / ✓ / ✓     HDD Password / HDD Encryption / EraseDisk <sup>21</sup> / TPM   ✓ / - / ✓     BIOS POST Watchdog / BIOS Boot Watchdog / OS HW Watchdog   - / - /     Logo Boot Option / Intel On Screen Branding   ✓ / ✓     High Efficiency Core Voltage Regulator Design   -     Operating Mode 24-7 / 8-5 (hrs per day - days per week)   - / ✓     Mainboard operating temperature range (chassis inside)   10°C - 45°C <b>nternal Connectors</b> -     DIMM Sockets (DDR3-1600)   2     PCI Express x16 Slot (Gen3) / PCI Express x16 Slot (Gen2)   - / 1     PCI Express x16 Slot (4 Lanes, Gen2) / x1 Slot (Gen2)   - / 2     PCI Slots (32Bit, 33 MHz, Rev. 2.3)   -     SATA-600 / SATA-300 / ATA / Floppy   2 / 2 / - / -     S/PDIF (digital Audio) OUT / IN   - / -     Frontpanel Audio (9-Pin, HD Audio)   1     FireWire™ (9-Pin, Intel standard header)   -     USB 2.0 channels / USB 3.0 channels / USB Stick (2.0)   4 / - / -     Serial (FIFO, 16550 compatible)   -     FAN PSU <sup>11</sup> / CPU / AUX1 / AUX2   - / 1 / 1 / 1 / -     SMBus (Case Temperature)
Recovery BIOS / Desk Update / Multi Boot $\checkmark$ / $\checkmark$ / $\checkmark$ HDD Password / HDD Encryption / EraseDisk 2) / TPM $\checkmark$ / $\checkmark$ / $\checkmark$ BIOS POST Watchdog / BIOS Boot Watchdog / OS HW Watchdog $-$ / $-$ / $-$ Logo Boot Option / Intel On Screen Branding $\checkmark$ / $\checkmark$ High Efficiency Core Voltage Regulator Design $-$ Operating Mode 24-7 / 8-5 (hrs per day - days per week) $-$ / $\checkmark$ Mainboard operating temperature range (chassis inside)10°C - 45°C <b>nternal Connectors</b> $-$ DIMM Sockets (DDR3-1600) $2$ PCI Express x16 Slot (Gen3) / PCI Express x16 Slot (Gen2) $-$ / 1PCI Express x16 Slot (4 Lanes, Gen2) / x1 Slot (Gen2) $-$ / 2PCI Slots (32Bit, 33 MHz, Rev. 2.3) $-$ SATA-600 / SATA-300 / ATA / Floppy $2$ / $2$ / $-$ / $-$ SrPDIF (digital Audio) OUT / IN $-$ Frontpanel Audio (9-Pin, HD Audio)1FireWire <sup>™</sup> (9-Pin, Intel standard header) $-$ USB 2.0 channels / USB 3.0 channels / USB Stick (2.0) $4$ / $-$ Serial (FIFO, 16550 compatible) $-$ FAN PSU <sup>1)</sup> / CPU / AUX1 / AUX2 $-$ / 11 / 1 / $-$ SMBus (Case Temperature) $-$ Intrusion (Case Open) $-$ Parallel (EPP/ECP) Pin Connector $-$
HDD Password / HDD Encryption / EraseDisk <sup>21</sup> / TPM   ✓ / - / - / -     BIOS POST Watchdog / BIOS Boot Watchdog / OS HW Watchdog   - / - / -     Logo Boot Option / Intel On Screen Branding   ✓ / ✓     High Efficiency Core Voltage Regulator Design   -     Operating Mode 24-7 / 8-5 (hrs per day - days per week)   - / ✓     Mainboard operating temperature range (chassis inside)   10°C - 45°C <b>nternal Connectors</b> -     DIMM Sockets (DDR3-1600)   2     PCI Express x16 Slot (Gen3) / PCI Express x16 Slot (Gen2)   - / 1     PCI Express x16 Slot (Gen3) / PCI Express x16 Slot (Gen2)   - / 2     PCI Isots (32Bit, 33 MHz, Rev. 2.3)   -     SATA-600 / SATA-300 / ATA / Floppy   2 / 2 / - / -     S/PDIF (digital Audio) OUT / IN   - / -     Frontpanel Audio (9-Pin, HD Audio)   1     FireWire™ (9-Pin, Intel standard header)   -     USB 2.0 channels / USB 3.0 channels / USB Stick (2.0)   4 / - / -     Serial (FIFO, 16550 compatible)   -     FAN PSU <sup>11</sup> / CPU / AUX1 / AUX2   - / 1 / 1 / 1 / -     SMBus (Case Temperature)   -     Intrusion (Case Open)   -     Parallel (EPP/ECP) Pin Connector   -
BIOS POST Watchdog / BIOS Boot Watchdog / OS HW Watchdog   -/-/-     Logo Boot Option / Intel On Screen Branding   ✓ / ✓     High Efficiency Core Voltage Regulator Design   -     Operating Mode 24-7 / 8-5 (hrs per day - days per week)   -/ ✓     Mainboard operating temperature range (chassis inside)   10°C - 45°C <b>nternal Connectors</b> -     DIMM Sockets (DDR3-1600)   2     PCI Express x16 Slot (Gen3) / PCI Express x16 Slot (Gen2)   - / 1     PCI Express x16 Slot (Gen3) / PCI Express x16 Slot (Gen2)   - / 2     PCI Isots (32Bit, 33 MHz, Rev. 2.3)   -     SATA-600 / SATA-300 / ATA / Floppy   2 / 2 / - / -     S/PDIF (digital Audio) OUT / IN   - / -     Frontpanel Audio (9-Pin, HD Audio)   1     FireWire™ (9-Pin, Intel standard header)   -     USB 2.0 channels / USB 3.0 channels / USB Stick (2.0)   4 / - / -     Serial (FIFO, 16550 compatible)   -     FAN PSU <sup>11</sup> / CPU / AUX1 / AUX2   -/11 / 1 / -     SMBus (Case Temperature)   -     Intrusion (Case Open)   -     Parallel (EPP/ECP) Pin Connector   -
Logo Boot Option / Intel On Screen Branding✓ / ✓High Efficiency Core Voltage Regulator Design-Operating Mode 24-7 / 8-5 (hrs per day - days per week)- / ✓Mainboard operating temperature range (chassis inside)10°C - 45°C <b>nternal Connectors</b> -DIMM Sockets (DDR3-1600)2PCI Express x16 Slot (Gen3) / PCI Express x16 Slot (Gen2)- / 1PCI Express x16 Slot (Gen3) / PCI Express x16 Slot (Gen2)- / 1PCI Express x16 Slot (4 Lanes, Gen2) / x1 Slot (Gen2)- / 2PCI Slots (32Bit, 33 MHz, Rev. 2.3)-SATA-600 / SATA-300 / ATA / Floppy2 / 2 / - / -S/PDIF (digital Audio) OUT / IN- / -Frontpanel Audio (9-Pin, HD Audio)1FireWire™ (9-Pin, Intel standard header)-USB 2.0 channels / USB 3.0 channels / USB Stick (2.0)4 / - / -Serial (FIFO, 16550 compatible)-FAN PSU <sup>11</sup> / CPU / AUX1 / AUX2- / 1 / 1 / 1 / -SMBus (Case Temperature)-Intrusion (Case Open)-Parallel (EPP/ECP) Pin Connector-
High Efficiency Core Voltage Regulator Design   -     Operating Mode 24-7 / 8-5 (hrs per day - days per week)   - / ✓     Mainboard operating temperature range (chassis inside)   10°C - 45°C <b>nternal Connectors</b> -     DIMM Sockets (DDR3-1600)   2     PCI Express x16 Slot (Gen3) / PCI Express x16 Slot (Gen2)   - / 1     PCI Express x16 Slot (4 Lanes, Gen2) / x1 Slot (Gen2)   - / 2     PCI Slots (32Bit, 33 MHz, Rev. 2.3)   -     SATA-600 / SATA-300 / ATA / Floppy   2 / 2 / - / -     S/PDIF (digital Audio) OUT / IN   - / -     Frontpanel Audio (9-Pin, HD Audio)   1     FireWire™ (9-Pin, Intel standard header)   -     USB 2.0 channels / USB 3.0 channels / USB Stick (2.0)   4 / - / -     Serial (FIFO, 16550 compatible)   -     FAN PSU <sup>11</sup> / CPU / AUX1 / AUX2   - / 1 / 1 / 1 / -     SMBus (Case Temperature)   -     Intrusion (Case Open)   -     Parallel (EPP/ECP) Pin Connector   -
Operating Mode 24-7 / 8-5 (hrs per day - days per week)- / ✓Mainboard operating temperature range (chassis inside) $10^\circ$ C - 45°Cnternal ConnectorsDIMM Sockets (DDR3-1600)2PCI Express x16 Slot (Gen3) / PCI Express x16 Slot (Gen2)- / 1PCI Express x16 Slot (4 Lanes, Gen2) / x1 Slot (Gen2)- / 2PCI Slots (32Bit, 33 MHz, Rev. 2.3)-SATA-600 / SATA-300 / ATA / Floppy2 / 2 / - / -S/PDIF (digital Audio) OUT / IN- / -Frontpanel Audio (9-Pin, HD Audio)1FireWire™ (9-Pin, Intel standard header)-USB 2.0 channels / USB 3.0 channels / USB Stick (2.0)4 / - / -Serial (FIFO, 16550 compatible)-FAN PSU <sup>11</sup> / CPU / AUX1 / AUX2- / 11/1 / -SMBus (Case Temperature)-Parallel (EPP/ECP) Pin Connector-
Mainboard operating temperature range (chassis inside)   10°C - 45°C     nternal Connectors   DIMM Sockets (DDR3-1600)   2     PCI Express x16 Slot (Gen3) / PCI Express x16 Slot (Gen2)   - / 1     PCI Express x16 Slot (4 Lanes, Gen2) / x1 Slot (Gen2)   - / 2     PCI Slots (32Bit, 33 MHz, Rev. 2.3)   -     SATA-600 / SATA-300 / ATA / Floppy   2 / 2 / - / -     S/PDIF (digital Audio) OUT / IN   - / -     Frontpanel Audio (9-Pin, HD Audio)   1     FireWire™ (9-Pin, Intel standard header)   -     USB 2.0 channels / USB 3.0 channels / USB Stick (2.0)   4 / - / -     Serial (FIFO, 16550 compatible)   -     FAN PSU <sup>11</sup> / CPU / AUX1 / AUX2   -/ 11 / 1 / -     SMBus (Case Temperature)   -     Intrusion (Case Open)   -     Parallel (EPP/ECP) Pin Connector   -
Internal ConnectorsDIMM Sockets (DDR3-1600)2PCI Express x16 Slot (Gen3) / PCI Express x16 Slot (Gen2)- / 1PCI Express x16 Slot (4 Lanes, Gen2) / x1 Slot (Gen2)- / 2PCI Slots (32Bit, 33 MHz, Rev. 2.3)-SATA-600 / SATA-300 / ATA / Floppy2 / 2 / - / -S/PDIF (digital Audio) OUT / IN- / -Frontpanel Audio (9-Pin, HD Audio)1FireWire™ (9-Pin, Intel standard header)-USB 2.0 channels / USB 3.0 channels / USB Stick (2.0)4 / - / -Serial (FIFO, 16550 compatible)-FAN PSU <sup>11</sup> / CPU / AUX1 / AUX2- / 11 / 1 / -SMBus (Case Temperature)-Intrusion (Case Open)-Parallel (EPP/ECP) Pin Connector-
DIMM Sockets (DDR3-1600)     2       PCI Express x16 Slot (Gen3) / PCI Express x16 Slot (Gen2)     - / 1       PCI Express x16 Slot (4 Lanes, Gen2) / x1 Slot (Gen2)     - / 2       PCI Slots (32Bit, 33 MHz, Rev. 2.3)     -       SATA-600 / SATA-300 / ATA / Floppy     2 / 2 / - / -       S/PDIF (digital Audio) OUT / IN     - / -       Frontpanel Audio (9-Pin, HD Audio)     1       FireWire™ (9-Pin, Intel standard header)     -       USB 2.0 channels / USB 3.0 channels / USB Stick (2.0)     4 / - / -       Serial (FIFO, 16550 compatible)     -       FAN PSU <sup>11</sup> / CPU / AUX1 / AUX2     - / 11 / 1 / -       SMBus (Case Temperature)     -       Intrusion (Case Open)     -       Parallel (EPP/ECP) Pin Connector     -
PCI Express x16 Slot (4 Lanes, Gen2) / x1 Slot (Gen2)   - / 2     PCI Slots (32Bit, 33 MHz, Rev. 2.3)   -     SATA-600 / SATA-300 / ATA / Floppy   2 / 2 / - / -     S/PDIF (digital Audio) OUT / IN   - / -     Frontpanel Audio (9-Pin, HD Audio)   1     FireWire™ (9-Pin, Intel standard header)   -     USB 2.0 channels / USB 3.0 channels / USB Stick (2.0)   4 / - / -     Serial (FIFO, 16550 compatible)   -     FAN PSU <sup>11</sup> / CPU / AUX1 / AUX2   - / 1 / 1 / 1 / -     SMBus (Case Temperature)   -     PArallel (EPP/ECP) Pin Connector   -
PCI Express x16 Slot (4 Lanes, Gen2) / x1 Slot (Gen2)   - / 2     PCI Slots (32Bit, 33 MHz, Rev. 2.3)   -     SATA-600 / SATA-300 / ATA / Floppy   2 / 2 / - / -     S/PDIF (digital Audio) OUT / IN   - / -     Frontpanel Audio (9-Pin, HD Audio)   1     FireWire™ (9-Pin, Intel standard header)   -     USB 2.0 channels / USB 3.0 channels / USB Stick (2.0)   4 / - / -     Serial (FIFO, 16550 compatible)   -     FAN PSU <sup>11</sup> / CPU / AUX1 / AUX2   - / 1 / 1 / 1 / -     SMBus (Case Temperature)   -     PArallel (EPP/ECP) Pin Connector   -
PCI Slots (32Bit, 33 MHz, Rev. 2.3)   -     SATA-600 / SATA-300 / ATA / Floppy   2 / 2 / - / -     S/PDIF (digital Audio) OUT / IN   - / -     Frontpanel Audio (9-Pin, HD Audio)   1     FireWire™ (9-Pin, Intel standard header)   -     USB 2.0 channels / USB 3.0 channels / USB Stick (2.0)   4 / - / -     Serial (FIFO, 16550 compatible)   -     FAN PSU <sup>11</sup> / CPU / AUX1 / AUX2   - / 1 / 1 / 1 / -     SMBus (Case Temperature)   -     Intrusion (Case Open)   -     Parallel (EPP/ECP) Pin Connector   -
SATA-600 / SATA-300 / ATA / Floppy   2 / 2 / - / -     S/PDIF (digital Audio) OUT / IN   - / -     Frontpanel Audio (9-Pin, HD Audio)   1     FireWire™ (9-Pin, Intel standard header)   -     USB 2.0 channels / USB 3.0 channels / USB Stick (2.0)   4 / - / -     Serial (FIFO, 16550 compatible)   -     FAN PSU <sup>11</sup> / CPU / AUX1 / AUX2   - / 1 / 1 / 1 / -     SMBus (Case Temperature)   -     Parallel (EPP/ECP) Pin Connector   -
Frontpanel Audio (9-Pin, HD Audio)   1     FireWire™ (9-Pin, Intel standard header)   -     USB 2.0 channels / USB 3.0 channels / USB Stick (2.0)   4 / - / -     Serial (FIFO, 16550 compatible)   -     FAN PSU <sup>11</sup> / CPU / AUX1 / AUX2   - / 1 / 1 / -     SMBus (Case Temperature)   -     Intrusion (Case Open)   -     Parallel (EPP/ECP) Pin Connector   -
Frontpanel Audio (9-Pin, HD Audio)   1     FireWire™ (9-Pin, Intel standard header)   -     USB 2.0 channels / USB 3.0 channels / USB Stick (2.0)   4 / - / -     Serial (FIFO, 16550 compatible)   -     FAN PSU <sup>11</sup> / CPU / AUX1 / AUX2   - / 1 / 1 / -     SMBus (Case Temperature)   -     Intrusion (Case Open)   -     Parallel (EPP/ECP) Pin Connector   -
FireWire™ (9-Pin, Intel standard header)     -       USB 2.0 channels / USB 3.0 channels / USB Stick (2.0)     4 / - / -       Serial (FIFO, 16550 compatible)     -       FAN PSU <sup>11</sup> / CPU / AUX1 / AUX2     - / 1 / 1 / -       SMBus (Case Temperature)     -       Intrusion (Case Open)     -       Parallel (EPP/ECP) Pin Connector     -
USB 2.0 channels / USB 3.0 channels / USB Stick (2.0)     4 / - / -       Serial (FIFO, 16550 compatible)     -       FAN PSU <sup>11</sup> / CPU / AUX1 / AUX2     - / 1 / 1 / 1 / -       SMBus (Case Temperature)     -       Intrusion (Case Open)     -       Parallel (EPP/ECP) Pin Connector     -
Serial (FIFO, 16550 compatible)     -       FAN PSU <sup>11</sup> / CPU / AUX1 / AUX2     - / 1 / 1 / -       SMBus (Case Temperature)     -       Intrusion (Case Open)     -       Parallel (EPP/ECP) Pin Connector     -
FAN PSU <sup>11</sup> / CPU / AUX1 / AUX2     - / 1 / 1 / -       SMBus (Case Temperature)     -       Intrusion (Case Open)     -       Parallel (EPP/ECP) Pin Connector     -
SMBus (Case Temperature) -   Intrusion (Case Open) -   Parallel (EPP/ECP) Pin Connector -
Intrusion (Case Open) -   Parallel (EPP/ECP) Pin Connector -
Parallel (EPP/ECP) Pin Connector -
ATX Power Supply (24 pin + 4 pin) / 12V-only PowerSupply ✓ / -
External Connectors
VGA Sub D / DVI-I / DVI-D / DisplayPort V1.2 1 / - / 1 / -
Audio Mic. In / Line in / Line out (or driver configuration) 1 / 1 / 1
S/PDIF (digital Audio) OUT / IN -/-
LAN (RJ-45) 1
PS/2 Mouse / Keyboard 1 / 1
USB 2.0 / USB 3.0 2 / 2
Serial (RS232, FIFO, 16550 compatible) -
Parallel (EPP/ECP) -

1) Not supported by standard Power Supplies

2) EraseDisk = optional BIOS feature (license required)

## More information

## Fujitsu platform solutions

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- SPARC Enterprise: UNIX server
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- Systemwalker: System management software

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