Data Sheet

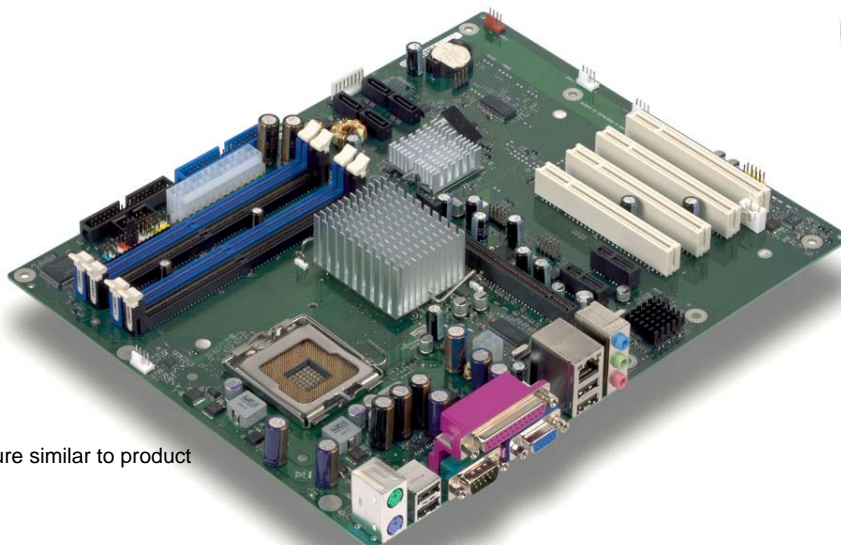# Premium Mainboard D2156-S2
Industrial Version
(Core™2 Duo support)

Intel® 945G Express Chipset for DDR2 667 SDRAM Memory and
Intel® Core™2 Duo / Pentium® D / Pentium® 4 / Celeron® D Processors (up to 1066 MHz FSB)

Enhanced operating temperature range from 0°C to 60°C

Picture similar to product

Chipset:

Intel® 945G

Processors:
Intel® Core™2 Duo Processors
LGA775 with 800/1066 MHz FSB

Intel® Pentium® D Processors
LGA775 with 533 / 800 MHz FSB

Intel® Pentium® 4 Processors,
LGA775 with 533/800 MHz FSB

Intel® Celeron® D Processors,
LGA775 with 533 MHz FSB
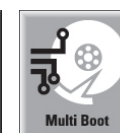
Support for Hyper-Threading Technology
Compatible with Intel® 06, 05A and 05B processors

Memory:

DDR2 667 SDRAM
DDR2 533 SDRAM
DDR2 400 SDRAM

Product Features:

Graphics on board
HD Audio on board
USB 2.0 on board
GBit LAN on board
Serial ATA II RAID on board

Intel® 945G EXPRESS CHIPSET Supports Intel® Pentium® D Processor

SERIAL ATA

PCI EXPRESS®

Designed for Microsoft® Windows®XP

Silent Fan | System Guard | Silent Drives | Safe Standby | Desk Update | Recovery BIOS | Multi Boot | HDD Password

Board Size	ATX: 12" x 9.6" (304.8 x 243.8 mm)
Chipset	Intel® 945G

Memory
4 DIMM Sockets (1,8V), 256 MB - 4 GB [2], Single or Dual Channel, DDR2 667/533/400 SDRAM, unbuffered, no ECC
(For details on recommended RAM, please refer to our website)

Processors
Intel® Core™2 Duo Processors LGA775 with 800/1066 MHz FSB
Intel® Pentium® D Processors LGA775 with 533 / 800 MHz FSB
Intel® Pentium® 4 Processors LGA775 with 533/800 MHz FSB
Intel® Celeron® D Processors LGA775 with 533 MHz FSB
Support for Hyper-Threading Technology
Compatible with Intel® 06 (max. 65W) and 05B (max. 130W) processors
(For details on processors supported, please refer to our website)

Power Specification
BTX12V (24 Pin) or ATX12V (20 Pin) Power Supply required
5V and 3.3V Supply Voltage on PCI Slots (PCI Rev. 2.3)
3.3 V Auxiliary Supply Voltage on PCI Slots (Wake-Up Function)
5V / 2A Auxiliary Power required for USB Wake-Up from Save-to-RAM, Save-to-Disk

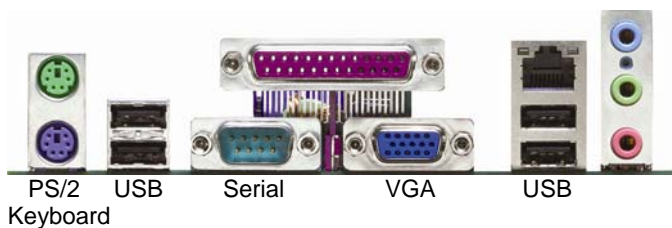**Power Supply Requirements**
for onboard components (worst case)

Source	Voltage	Maximal variation	Mainboard current (Maximal)
Main Power Supply	+ 12 V	5 %	17.0 A
	- 12 V	10 %	0.05 A
	+ 5 V	5 %	6 A
	+ 3.3 V	5 %	4 A
Aux. Power Supply	+ 5 V	5 %	2 A

BIOS
Phoenix cME FirstBIOS Desktop Pro Version V5.00
modified and adapted by Fujitsu Siemens Computers

Special Features

Silent Fan	Independent temperature related processor and fan supervision and control
System Guard	View and adjust Silent Fan
Silent Drives	Noise reduction for optical and hard disk drives
Safe Standby	Prevents data loss in S3 (save-to-RAM)
Recovery BIOS	Restores a corrupted BIOS
Desk Update	Simple driver update with DU DVD
Multi Boot	Comfortable boot from any boot device
HDD Password	Access protection for up to two disk drives

Designed for industrial applications

Longlife capacitors	Designed for 24/7 use in industrial applications
Tin-plated PCB	Improved durability of PCB surface
Revision control	Less hardware changes and outstanding information management
Extended lifetime	Mainboard available for more than three years

Additional Documentation & Support
RoHS-compliant
Enhanced operating temperature range (0°C-60°C) [1]

External Connectors

PS/2 Mouse   Parallel   LAN   Audio

PS/2   USB   Serial   VGA   USB
Keyboard

1) forced cooling required, see technical documentation for detailed requirements
2) 4GB address space thereof max. 3.0GB usable for physical main memory

Graphics
Intel® GMA950 Graphics Controller, shared memory (up to 224MB), DirectX 9 compliant, 333 MHz core frequency, 256-bit 2-D and 32-bit 3-D engine, Motion video acceleration, up to 2048 x 1536 at 75 Hz refresh, integrated 24-bit 400 MHz RAMDAC, upgradeable with PCI Express x16 Graphics Card or ADD2 Cards to add support for digital displays or TV Out

Audio
Realtek ALC262 (HD Audio), 2 channel

LAN
Broadcom BCM5751 controller with 10/100/1000 Mbit/s via PCI Express, Alert Standard Format (ASF), Wake-on-LAN (WoL) by interesting Packets, Link Status Change and Magic Packet™, bootix® PXE Support

IDE
1 ATA 100 Interface, up to 2 Drives,
4 Serial ATA II 300 Interfaces (up to 3 GBit, NCQ), up to 4 Drives, RAID 0, 1, 0+1, 5

Versions	D2156-S21
Features	
Chipset	Intel® 945G
Board Size	ATX
VGA	✓
Audio / 6-channel / S/PDIF	✓ / - / -
Buzzer / int. Speaker Support	- / ✓
LAN Gbit / 100 Mbit / 10 Mbit	✓ / ✓ / ✓
LAN ASF / AoL / WoL / Boot	✓ / - / ✓ / ✓
SATA / ATA / RAID	✓ / ✓ / ✓
FireWire™ / USB 2.0	- / ✓
FAN monitored PSU**/CPU/AUX1/AUX2/AUX3	✓ / ✓ / ✓ / ✓ / ✓
FAN controlled PSU**/CPU/AUX1/AUX2/AUX3	✓ / ✓ / ✓ / ✓ / ✓
TEMP monitored CPU/ONB1/ONB2/HDD	✓ / ✓ / ✓ / ✓

Special Features

	D2156-S21
Silent Fan / Silent Fan LT	✓ / -
System Guard / Silent Drives	✓ / ✓
Recovery BIOS/Desk Update/Multi Boot/Safe Standby	✓ / ✓ / ✓ / ✓
HDD Password	✓
Logo Boot / Intel On Screen Branding	✓ / ✓

Internal Connectors

	D2156-S21
DIMM Sockets (DDR2 667 SDRAM)	4
PCI Express x16	1
PCI Slots (32Bit, 33 MHz, 5 V and 3.3 V) PCI Rev. 2.3	4
PCI Express x1	2
SATA (300) / ATA (100) / Floppy	4 / 1 / 1
S/PDIF * (5.1 digital Audio) OUT / IN	- / -
Audio Input	1
Frontpanel Audio (9 Pin, Azalia Pinning)	1
FireWire™ * (9-Pin, Intel standard header)	-
USB * (2.0, ~480 MB/s)	4
Serial * (FIFO, 16550 compatible)	1
FAN PSU**/CPU/AUX1/AUX2/AUX3	1 / 1 / 1 / 1 / 1
SMBus * (Case Temperature)	-
Intrusion (Case Open)	-
Power BTX(ATX supported) / ATX12V / AGP Pro	1 / 1 / -

External Connectors

	D2156-S21
VGA	1
Audio Mic. In / Line in / Line out	1 / 1 / 1
S/PDIF (5.1 digital Audio, cinch) OUT / IN	- / -
LAN (RJ-45)	1
PS/2 Mouse / Keyboard	1 / 1
FireWire™ (6-Pin, IEEE 1394)	-
USB (2.0, ~480MB/s)	4
Serial (RS232, FIFO, 16550 compatible)	1
Parallel (EPP/ECP)	1

* for use with internal devices or optional Front- or Rearpanel
** not supported by standard Power Supplies

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