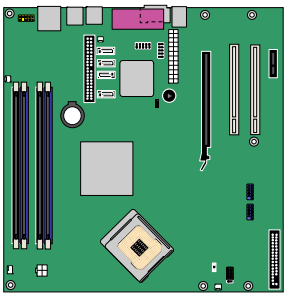
Intel® Desktop Board D945PAW Product Guide



Order Number: D10465-002

Revision History

Revision	Revision History	Date
-001	First release of the Intel® Desktop Board D945PAW Product Guide.	April 2005
-002	Second release of the Intel® Desktop Board D945PAW Product Guide.	August 2005

If an FCC declaration of conformity marking is present on the board, the following statement applies:

FCC Declaration of Conformity

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For questions related to the EMC performance of this product, contact:

Intel Corporation
5200 N.E. Elam Young Parkway
Hillsboro, OR 97124
1-800-628-8686

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit other than the one to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Any changes or modifications to the equipment not expressly approved by Intel Corporation could void the user's authority to operate the equipment.

Tested to comply with FCC standards for home or office use.

Canadian Department of Communications Compliance Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numerique témet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe B prescrites dans le Réglement sur le broullage radioélectrique édicté par le ministére des Communications du Canada.

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Desktop Board D945PAW may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata are available on request.

Contact your local Intel sales office or your distributor to obtain the latest specifications and before placing your product order.

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Preface

T P G a ab b a a , a a , BIOS a , a a I ® D B a D945PAW.

Intended Audience

T P G a a . I a a .

Use Only for Intended Applications

A I b a a a a a I a T E (I.T.E.) a (PC) a a , , , , a a a . T ab PC b -PC a a , a a , a , a a , , . a b a a b I .

Information Layout

T a P G a a a a :

1 D B a F a : a a a

2 I a a R a D B a C : a b a a a a

3 BIOS: a BIOS

A E M a a I a : a ab BIOS a a b

B R a C a : a a EMC a , a

Conventions

T a a a :

CAUTION

Cautions warn the user about how to prevent damage to hardware or loss of data.

NOTE

Notes call attention to important information.

Terminology

T ab b .

Term	Description
GB	Gigabyte (1,073,741,824 bytes)
GHz	Gigahertz (one billion hertz)
KB	Kilobyte (1024 bytes)
MB	Megabyte (1,048,576 bytes)
Mbit	Megabit (1,048,576 bits)
MHz	Megahertz (one million hertz)

Box Contents

- I ® D B a D945PAW
- I/O
- O ATA-66/100 ab
- T S a ATA ab
- O ab
- I ® E I a D CD-ROM
- I E I a S a CD-ROM
- Q R
- C a a ba a a ab

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1 Desktop Board Features

T a b b a a I ®D B a D945PAW. Tab 1 a a a b a .

Table 1. Feature Summary

Form Factors	MicroBTX (10.5-inches by 10.4-inches)
Processor	Support for an Intel® processor in the LGA775 package
Main Memory	• Four 240-pin, 1.8 V SDRAM Dual Inline Memory Module (DIMM) sockets • 667/533/400 MHz single or dual channel DDR2 SDRAM interface • Designed to support up to 4 GB of system memory **NOTE:** *System resources (such as PCI and PCI Express*) require physical memory address locations that reduce available memory addresses above 3 GB. This may result in less than 4 GB of memory being available to the operating system and applications. For the latest list of tested memory, refer to the Intel World Wide Web site at:* http://support.intel.com/support/motherboards/desktop/
Chipset	Intel® 945P Express Chipset consisting of: • Intel® 82945P Memory Controller Hub (MCH) with Direct Media Interface • Intel® 82801GB I/O Controller Hub (ICH7) • Serial Peripheral Interface (SPI) Flash or Firmware Hub (FWH)
Audio	• Intel 945P Express Chipset • Intel® High Definition Audio interface • SigmaTel* codec
LAN Subsystem	Intel® 82573V or 82573L Gigabit Ethernet controller with RJ-45 connector
Expansion Capabilities	• Two PCI bus add-in card connectors (SMBus routed to PCI bus 2) • One PCI Express x16 connector • One PCI Express x1 connector
Peripheral Interfaces	• Up to eight Hi-Speed USB 2.0 ports — Four ports routed to the back panel — Four ports routed to two USB headers • Up to three IEEE 1394a ports: — One port routed to the back panel — Two ports routed to two IEEE 1394a headers • Four Serial ATA (SATA) channels (3.0 Gb/s), via the ICH7, one device per channel • One IDE interface with ATA-66/100 support (two devices) • One diskette drive interface • One parallel port • One serial port • PS/2* keyboard and mouse ports

continued

Table 1. Feature Summary (continued)

BIOS	• Intel® Platform Innovation Framework for extensible firmware interface • 4 Mbit symmetrical flash memory • Support for SMBIOS • Intel® Rapid BIOS Boot • Intel® Express BIOS Update
Power Management	• Support for Advanced Configuration and Power Interface (ACPI) • Suspend to RAM (STR) • Wake on USB, PCI, PCI Express, PS/2, LAN, and front panel
Hardware Management	Hardware monitor with: • Three fan sensing inputs used to monitor fan activity • Remote diode temperature sensing • Intel® Precision Cooling Technology fan speed control • Voltage sensing to detect out of range values

Related Links:

F a ab D B a D945PAW, T a P
S a (TPS), BIOS a , a , :

:// . . / / b a / /

Supported Operating Systems

T b a a :

- M W * 2000
- M W XP P a
- M W XP P a 64 E
- M W XP H
- M W XP M a C E 2005

Desktop Board Components

F 1 a a a a D B a D945PAW.

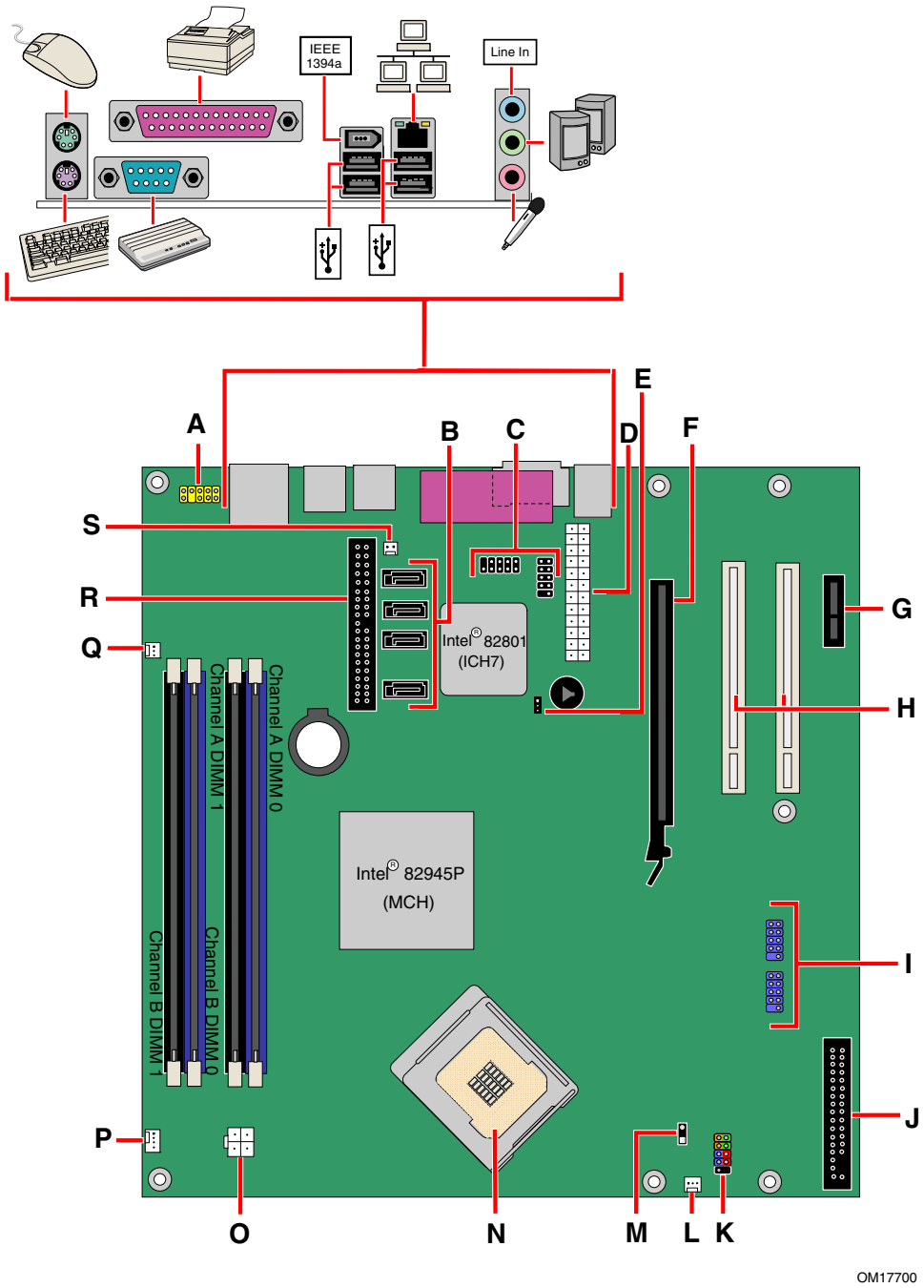


Figure 1. Desktop Board D945PAW Components

Table 2. Desktop Board D945PAW Components

Label	Description
A	Front panel audio header
B	Serial ATA connectors
C	Hi-Speed USB 2.0 headers
D	Main power connector (2x12)
E	BIOS configuration jumper block
F	PCI Express x16 connector
G	PCI Express x1 connector
H	PCI bus add-in card connectors
I	IEEE 1394a headers
J	Diskette drive connector
K	Front panel header
L	Front chassis fan header (3-pin, fan speed control)
M	Alternate power LED header
N	Processor socket
O	12 V processor core voltage connector (2x2)
P	Processor fan header (4-pin, fan speed control)
Q	Rear chassis fan header (3-pin, fan speed control)
R	IDE connector
S	Chassis intrusion header

Related Links:

G a ab :

- D b a D945PAW http://www.intel.com/design/motherbd http://support.intel.com/support/motherboards/desktop
- S http://support.intel.com/support/motherboards/desktop
- A a a http://www.intel.com/design/motherbd
- LAN a a http://www.intel.com/design/motherbd

Processor

CAUTION

Failure to use the appropriate power supply (below) and/or not connecting the 12 V (2x2) power connector to the desktop board may result in damage to the board or the system may not function properly.

Table 3. Power Supply Requirements

Platform Compatibility Guide	Power Supply Requirements
05B	12V2 rating of 16 A continuous and 19 A peak current for 10mS
05A	12V2 rating of 13 A continuous and 16.5 A peak current for 10mS
04B or 04A	ATX12V (version 2.0 or greater) compliant Power Supply

D B a D945PAW a I LGA775 a a . P a b a a b a a a . T b a LGA775 .

T D B a D945PAW a b a :
:// . . / / b a / /

Related Links:

G a a ab :

- I a a , a 28 C a 2
- T a , a 44 C a 2

Main Memory

NOTE

To be fully compliant with all applicable Intel® SDRAM memory specifications, the board should be populated with DIMMs that support the Serial Presence Detect (SPD) data structure. If your memory modules do not support SPD, you will see a notification to this effect on the screen at power up. The BIOS will attempt to configure the memory controller for normal operation.

T b a a a a Tab 4.

Table 4. Desktop Board D945PAW Memory Configurations

Memory Speed	FSB frequency (MHz)	Memory Speed (MHz)
DDR2-667	1066	667
	800	667
	533	533
DDR2-533	1066	533
	800	533
	533	533
DDR2-400	800	400
	533	400

- F 240- D b Da a Ra 2 (DDR2) SDRAM D a I M M (DIMM)
  - a a
- U b , - b - DIMM
- S a P D (SPD)
- N -ECC RAM
- 1.8 V
- M a b :
  - U 2.0 GB 256 Mb
  - U 4.0 GB 512 Mb 1 Gb

NOTE

System resources (such as PCI and PCI Express) require physical memory address locations that reduce available memory addresses above 3 GB. This may result in less than 4 GB of memory being available to the operating system and applications.

Related Links:

G a a ab :

- T a , :// . . / / b a / /
- SDRAM a , :// . . / / /
- I a , a 32 C a 2

Intel® 945P Express Chipset

T I 945P E C :

- I 82945P M C H b (MCH) D a M a I a
- I 82801GB I/O C H b (ICH7)
- S a P a I a (SPI) F a F a H b (FWH)

Related Link:

G a ab I 945P E C :

:// . . / / a / .

Graphics Subsystem

D B a D945PAW :

- I 945P E C
- PCI E 16 a a

Audio Subsystem

D B a D945PAW a b 6- a a b ba a
I H D A a :

T a b a :

- I 82801GB I/O C H b (ICH7)
- S aT STAC9220 a
- I a a ab a - a
- S/N (a - -) a : > 95 B
- M :
  - S
  - M b

T b :

- F a a , a :
  - L
  - M
- Ba a a a a ab a :
  - L
  - L
  - M
  - C /LFE
  - R a a

Related Links:

G a a ab :

- A a ://. . / / b a / /
- I a a a , a 40 C a 2
- T a a , a 42 C a 2

Input/Output (I/O) Controller

T I/O a :

- L (LPC) a
- O a
- O a a E Ca ab P (ECP) a E a Pa a P (EPP)
- S a IRQ a a b a IRQ PCI
- PS/2- a b a a
- I a 1.2 MB 1.44 MB
- I a a , a a ab a a
- PCI a a

LAN Subsystem

T LAN b , I 82801GB (ICH7), :

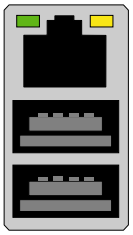
- S I 82573V 82573L 10/100/1000 G ab E LAN
- S RJ-45 a a LED
- P a ab a
- C ab EEPROM a a MAC a

LAN Subsystem Software

F LAN a a , D945PAW I ' W W W b a :
://. . / / b a /

RJ-45 LAN Connector LEDs

T LED a b RJ-45 LAN a ba a (F 2).



OM17386

Figure 2. LAN Port LED Locations

Tab 5 b LED a b a a 10/100/1000 G ab E LAN b a .

Table 5. RJ-45 10/100/1000 Gigabit Ethernet LAN Connector LEDs

LED	LED Color	LED State	Indicates
Left	Green	Off	LAN link is not established
		On	LAN link is established
		Blinking	LAN activity is occurring
Right	N/A	Off	10 Mb/s data rate
	Green	On	100 Mb/s data rate
	Yellow	On	1000 Mb/s data rate

Hi-Speed USB 2.0 Support

NOTE

Computer systems that have an unshielded cable attached to a USB port might not meet FCC Class B requirements, even if no device or a low-speed USB device is attached to the cable. Use a shielded cable that meets the requirements for a full-speed USB device.

T b a USB 2.0 a ICH7; ba a a a USB 2.0 a . USB 2.0 a ba a a b USB 1.1 . USB 1.1 a a USB 1.1 .

USB 2.0 b a a a a USB 2.0 a a . D ab H -S USB BIOS a USB 2.0 USB 1.1 a . T a b a a a a USB 2.0.

Enhanced IDE Interface

T ICH7' IDE a a a a b a a a , CD-ROM , a I a Z * .

T a :

- U IDE (a a)
- ATAPI- (a CD-ROM)
- O PIO M
- U a DMA-33 a ATA-66/100
- La S (LS-120)

Serial ATA

T b a S a ATA a (3.0 Gb/) a ICH7, a .

Expandability

T b a :

- O PCI E 16 a - a
- O PCI E 1 a - a
- T PCI a - a

Related Links:

F a ab a PCI E 16 a , a 36 C a 2.

BIOS

T BIOS P -O S -T (POST), BIOS S a , PCI/PCI E a IDE a - a , a BIOS. T BIOS S a P a I a (SPI) F a F a H b.

T BIOS a b a b a 53 C a 3.

Serial ATA and IDE Auto Configuration

I a a S a ATA IDE (a a a) , a - a BIOS a a a a . Y BIOS S a a a a S a ATA IDE . Y a a - a b a a a BIOS S a .

PCI and PCI Express Auto Configuration

I a a PCI/PCI E a - a , PCI/PCI E a - a BIOS a a a a (IRQ , DMA a , a I/O a) a a - a . Y BIOS S a a a a PCI/PCI E a - a .

Security Passwords

T BIOS a a BIOS S a a b a a a b . A a a a a a b BIOS S a b , :

- T a a a a a S . I a , <E > a a S a S .
- I b a a a , a a a S . S a a a ab a a a a .
- S a a a b . T a a b b . I a , b a a a . I b a a , a a b .

Related Links:

F a , C a Pa a 47.

Chassis Intrusion

T b a a a a a a b .
T a a a a a a b a
a b a . S F 20 a 39 a a
a .

Power Management Features

P a a a a , :

- A a C a a P I a (ACPI)
- Ha a :
  - — P
  - — Fa
  - — S RAM (I a A a ab PC)
  - — Wa USB
  - — Wa PS/2 b a /
  - — PME# a

ACPI

ACPI a a a P a P a
a . T ACPI b a a a a
ACPI .

Power Connectors

T b a a . S F 23 a 44 a
.

Fan Connectors

T b a a a 4- a a a 3- a a a . S
F 22 a 43 a a a .

Fan Speed Control (Intel® Precision Cooling Technology)

I P C T a a a a a ba
a a a a a a
a . S a a b b a a a a
a a .

T a a a a a b ab
b a BIOS. D ab a a a a
a a . I a a
a ab (a BIOS) a a -
I ® b . D ab a a a a a a

a a . T a a a b ab a -
a a a a a a a a .
T a a ba a a .

Suspend to RAM (Instantly Available PC Technology)

CAUTIONS

For Instantly Available PC technology, the 5 V standby line for the power supply must be capable of delivering adequate +5 V standby current. Failure to provide adequate standby current when using this feature can damage the power supply and/or effect ACPI S3 sleep state functionality.

Power supplies used with this desktop board must be able to provide enough standby current to support the standard Instantly Available (ACPI S3 sleep state) configuration. If the standby current necessary to support multiple wake events from the PCI and/or USB buses exceeds power supply capacity, the desktop board may lose register settings stored in memory.

I a A a ab PC ab b a ACPI S3 (S - -RAM)
a . W S3 a , a a b . W a b a a -
, a a a a .
T b a ' a b a , F 3, a b
. T a PCI b ,
a a b .
I a a a - LED a , a a b
LED a b .

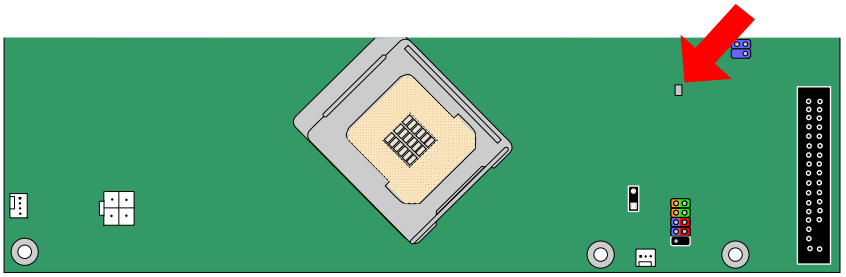


Figure 3. Location of Standby Power Indicator

Related Links:

F a a b b a , T a
P S a b , , a P
D a - a :

:// . . / / b a / /

Wake from USB

NOTE

Wake from USB requires the use of a USB peripheral that supports wake from USB.

USB b a a a ACPI S1 S3 a .

Wake from PS/2 Keyboard/Mouse

PS/2 b a / a a a ACPI S1 S3 a .

PME# Wakeup Support

W PME# a PCI b a , a a ACPI S1, S3, S5 a .

Speaker

A a b a . T a a b (b) a P -O S -T (POST).

Battery

A ba b a a CMOS RAM a . G a 48 a ba .

Real-Time Clock

T b a a a - - a a 100- a a a . T ba b a .

2 Installing and Replacing Desktop Board Components

T a :

- I a I/O
- I a a b a
- I a a a a
- I a a a PCI E 16 a
- C IDE a S a ATA ab
- C a a
- S b 6- a a a - a
- C a a ab
- L a
- S BIOS a
- C a a
- R a ba

Before You Begin

CAUTIONS

The procedures in this chapter assume familiarity with the general terminology associated with personal computers and with the safety practices and regulatory compliance required for using and modifying electronic equipment.

Disconnect the computer from its power source and from any telecommunications links, networks, or modems before performing any of the procedures described in this chapter. Failure to disconnect power, telecommunications links, networks, or modems before you open the computer or perform any procedures can result in personal injury or equipment damage. Some circuitry on the board can continue to operate even though the front panel power button is off.

NOTE

Refer to Appendix B for regulatory requirements.

F b b :

- A a a .
- S a a ab , a , a b , a , a a a .
- E a a (ESD) a a a . P b a a a ESD a a a a a a a . I a a a a ab , a ESD b a a a a a a a a a a a .

Installation Precautions

W a a I b a , b a a a a a a .

T a , b a :

- S a
- S a a b
- R a a a
- H (, a a , a a)
- Da a a a a

Ob a a a a a a a .

Installation Instructions

NOTE

Follow these guidelines to meet safety and regulatory requirements when installing this board.

R a a a a a a a a a a . I a a a a , a , a a a a a a a . I a b a a , a a a b a a a a a a .

Ensure Electromagnetic Compatibility (EMC) Compliance

B a , a a a a , a a ab , a a C a B EMC a a a a .

Pa a a a a a a , , a :

- P a a a
- E a I/O ab a
- M , , a b
- K a b a a

I a a , a a ab , a C a B EMC a b a , EMC a b a a a .

Chassis and Component Certifications

E a a a a ; a , a , , a ab ; a a . A a a a a . T a a :

- **In Europe**
  T CE a a a a ab E a . I a a a CE a , a ’ D a a C a E a EMC a L V a (a a ab), b b a . A a , , a Ra a T a T a E (R&TTE) a a a a .
- **In the United States**
  A a a b a Na a R T Lab a (NRTL) a UL, CSA, ETL a a . W a ab a b UL a ab . T FCC C a B a a (EMI) .
- **In Canada**
  A a a a a a CSA UL a a . T I Ca a a a a a a Ca a a EMC a .

Prevent Power Supply Overload

D a . T a a , a a a a a a a a a a .

Place Battery Marking

CAUTION

Risk of explosion if the battery is replaced with an incorrect type. Batteries should be recycled where possible. Disposal of used batteries must be in accordance with local environmental regulations.

T a b a a a L ba . F a a , ab a a a b a a b a a a ba .

Related Links:

F a ab a ba , a 48 C a 2.

Use Only for Intended Applications

A I b a a a a I a T E (I.T.E.) a (PC) a a , , , , a a a . T ab PC b -PC a a , a a , a , a a , , . a b a a b I .

Related Links:

F a ab a a , A B a 59.

Installing the I/O Shield

T b a a I/O . W a a , b a a , a a b , a a a .

I a I/O b a b a a . P a a a F 4. P a a a . I ' , b a a - a .

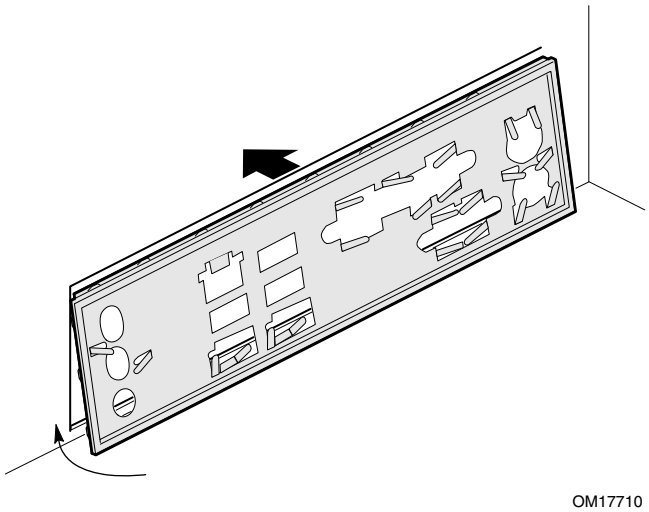


Figure 4. Installing the I/O Shield

Installing and Removing the Desktop Board

CAUTION

Only qualified technical personnel should do this procedure. Disconnect the computer from its power source before performing the procedures described here. Failure to disconnect the power before you open the computer can result in personal injury or equipment damage.

R a a a a a b a .

F 5 a D B a D945PAW.

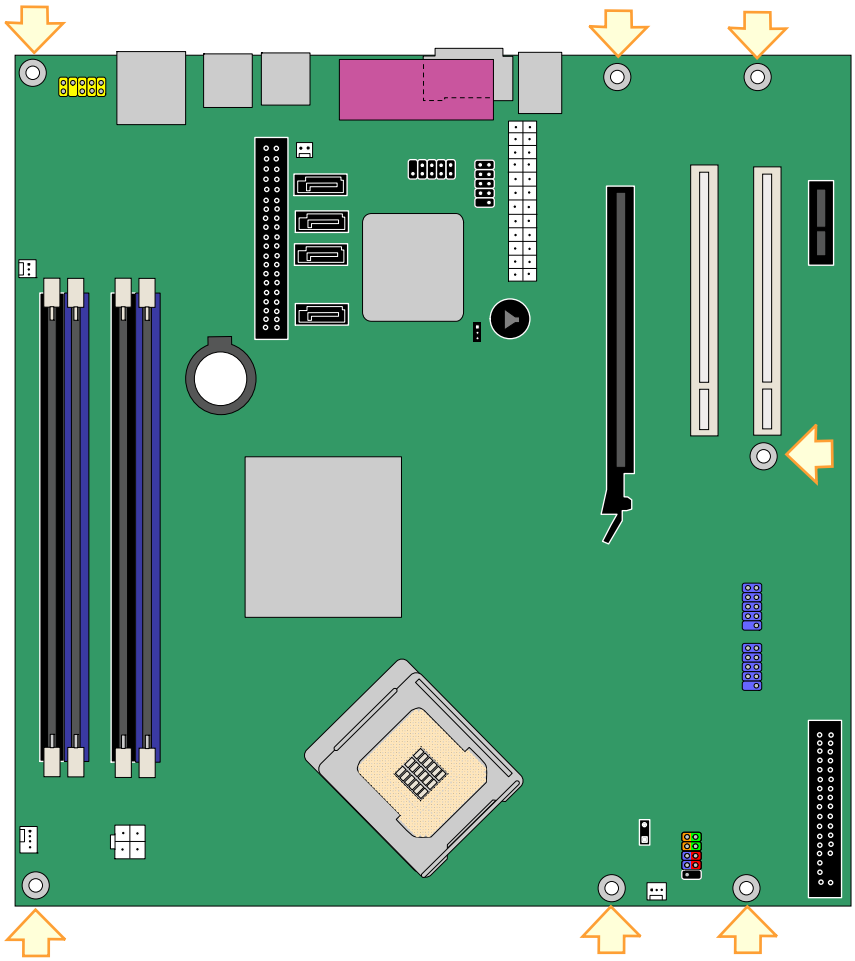


Figure 5. Desktop Board D945PAW Mounting Screw Hole Locations

Installing and Removing a Processor

I a b a a b .

Installing a Processor

CAUTION

Before installing or removing the processor, make sure the AC power has been removed by unplugging the power cord from the computer; the standby power LED should not be lit (see Figure 3 on page 20). Failure to do so could damage the processor and the board.

T a a , :

1. Ob a "B Y B " a 23.
2. O b a a a (F 6, A a B).

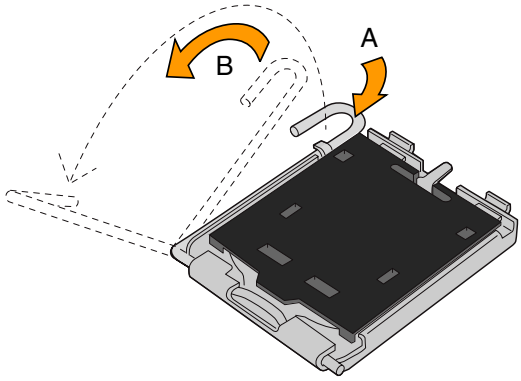


Figure 6. Lift Socket Lever

3. L a a . D a (F 7, C a D)

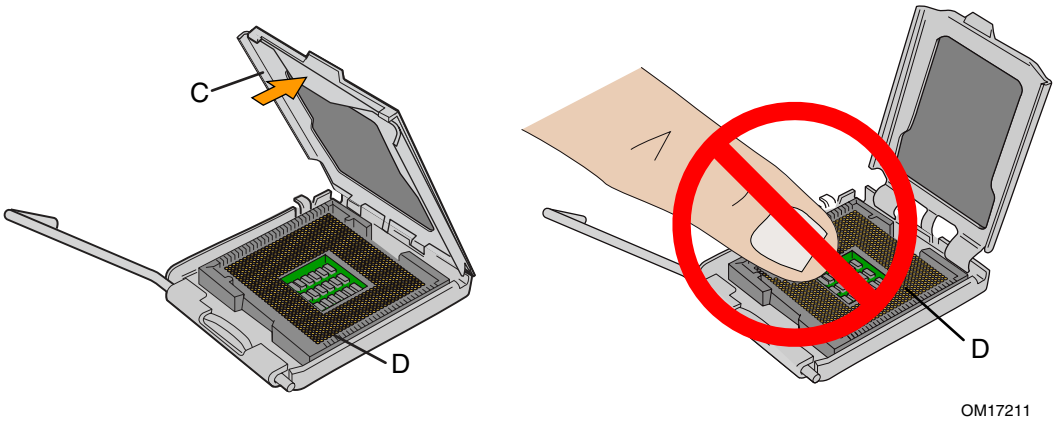


Figure 7. Lift the Load Plate and Don't Touch the Socket Contacts

4. R a a a (F 8, E). D a . A a a .

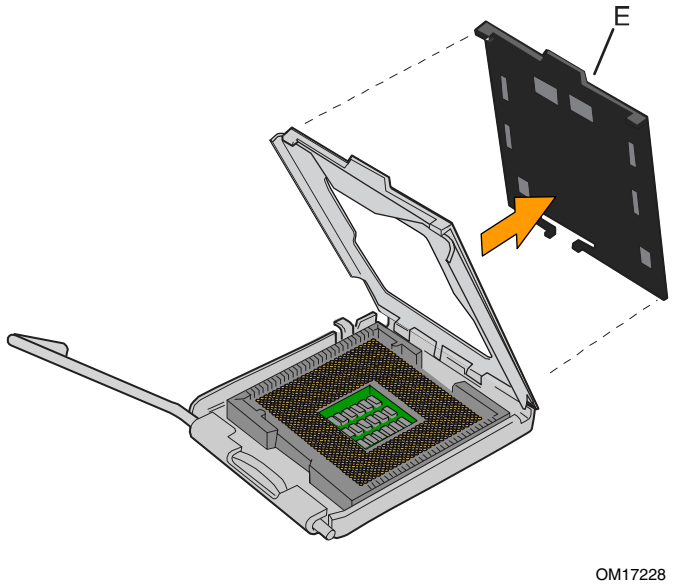


Figure 8. Remove the Protective Socket Cover

5. R . H a , b a b (F 9). D a . A a a ba a a .

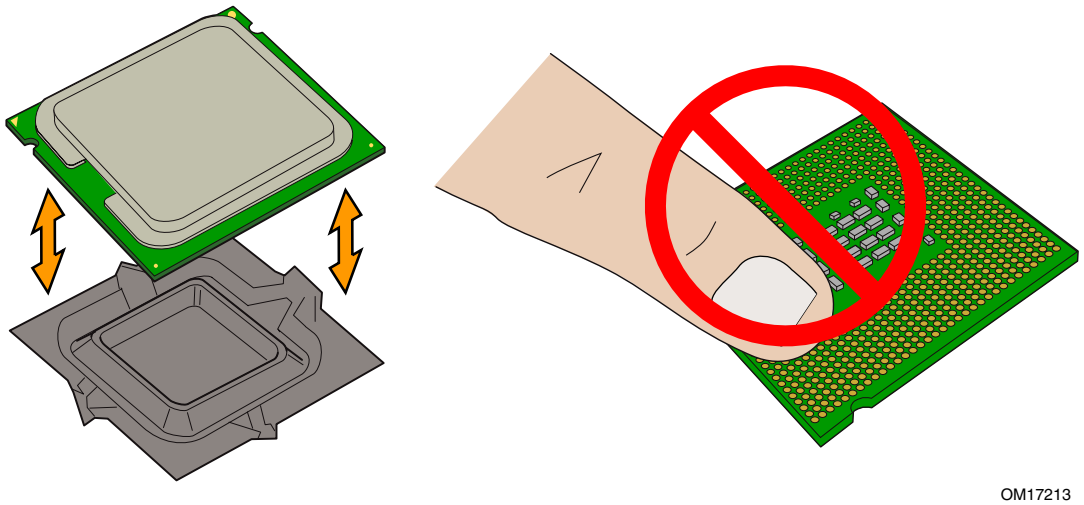


Figure 9. Remove the Processor from the Protective Processor Cover/Do Not Touch

6. H b a a F 10. Ma a (F 10, F). A (F 10, G) (F 10, H). L a .

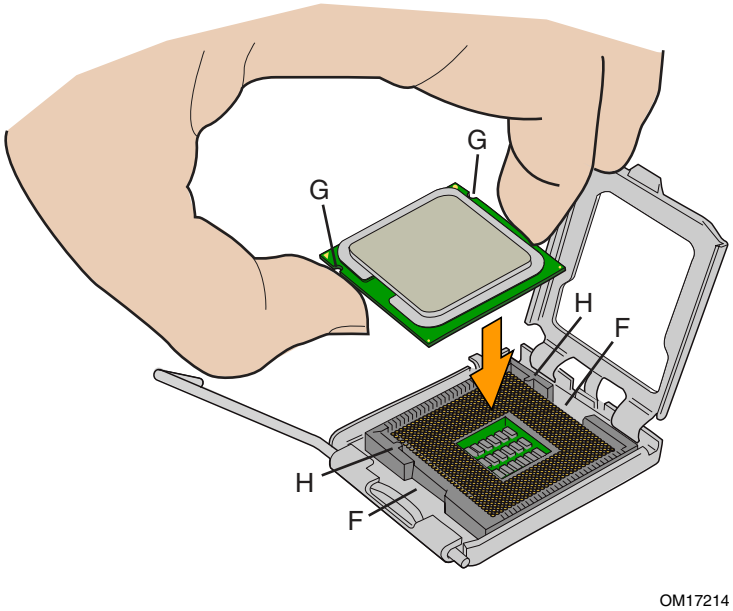


Figure 10. Install Processor

7. P a a (F 11, I) a a (F 11, J).

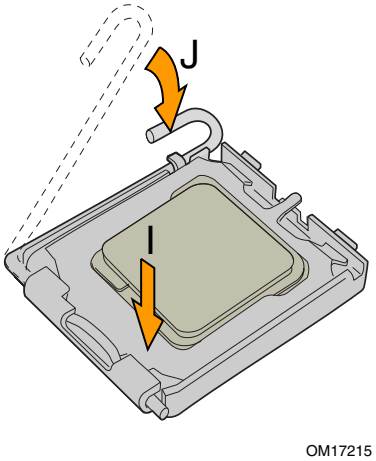


Figure 11. Close the Load Plate

Installing the Processor Fan Heat Sink

D B a D945PAW a a a a a a (RM).
F a a a a a a a
RM, b a a I W W W b a :

T B I ® P ® 4 P 775-La Pa a

Connecting the Processor Fan Heat Sink Cable

C a a ab 4- a (F 12).

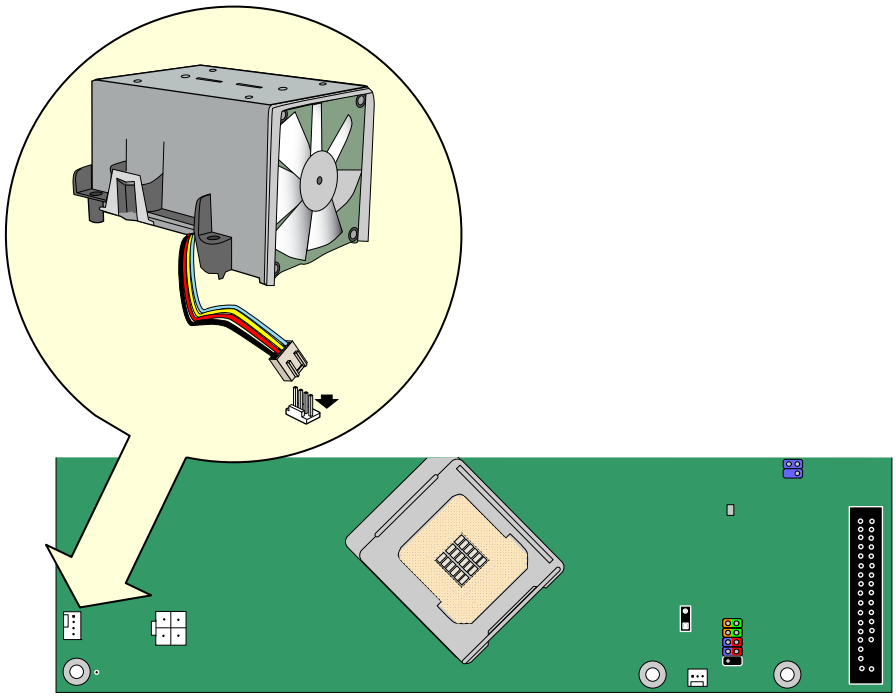


Figure 12. Connecting the Processor Fan Heat Sink Cable to the Processor Fan Connector

Removing the Processor

F a a a ,
a a a a I W W W b a :

T B I ® P ® 4 P 775-La Pa a

Installing and Removing Memory

NOTE

To be fully compliant with all applicable Intel SDRAM memory specifications, the boards require DIMMs that support the Serial Presence Detect (SPD) data structure. You can access the PC Serial Presence Detect Specification at:
:// . . / / / / / a18_32_64_128_72a a.

T b a a 240- DDR2 DIMM a a a DIMM 0 (b) a DIMM 1 (b a) b C a A a C a B.

Guidelines for Dual Channel Memory Configuration

B a DIMM , a a a a a .

Two or Four DIMMs

I a a a a DIMM a a DIMM 0 (b) b a A a B (F 13).

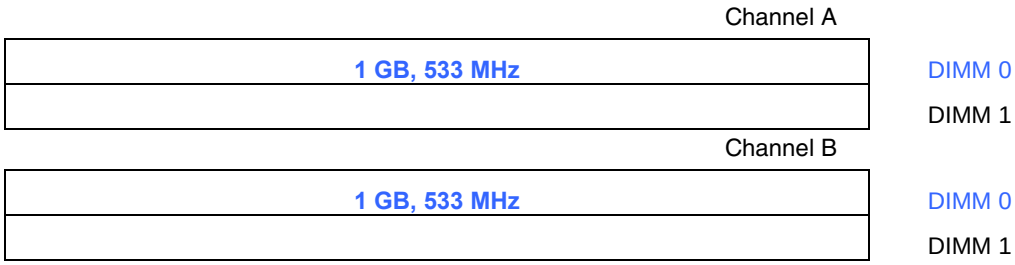


Figure 13. Dual Configuration Example 1

I a a b , a a a a DIMM DIMM 1 (b a) b a A a B (F 14).

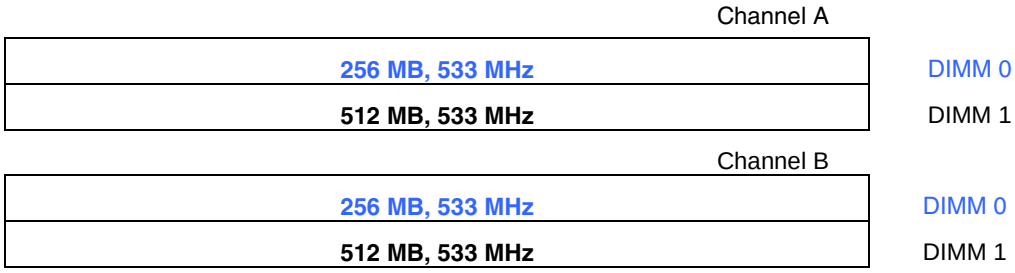


Figure 14. Dual Configuration Example 2

Three DIMMs

I a a a a DIMM a a DIMM 0 (b) a DIMM 1 (b a)
a A. I a a DIMM a a a DIMM a a A
DIMM 0 DIMM 1 a B (F 15).

Channel A	
256 MB, 533 MHz	DIMM 0
256 MB, 533 MHz	DIMM 1
Channel B	
512 MB, 533 MHz	DIMM 0
	DIMM 1

Figure 15. Dual Configuration Example 3

NOTE

All other memory configurations will result in single channel memory operation.

Installing DIMMs

1. Ob a "B Y B " a 23.
2. T a a . T a AC .
3. R ’ a a DIMM (F 16).

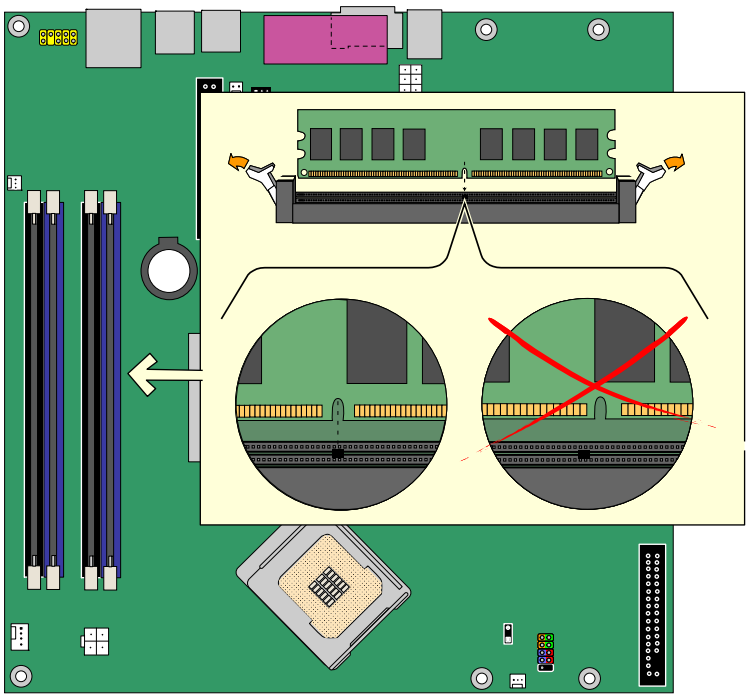


Figure 16. Installing a DIMM

4. Ma a DIMM ( ) a a .
5. H DIMM b , a - a a a .
6. P DIMM ab . A a a b DIMM (F 16).
7. I b DIMM .
8. W DIMM , DIMM a a a . Ma a a .
9. R a ’ a AC .

Removing DIMMs

T a DIMM, :

1. Ob a "B Y B " a 23.
2. T a a . T .
3. R AC .
4. R ’ .
5. G a a a a DIMM . T DIMM .
6. H DIMM b , a a , a a a - a a a .
7. R a a a a a DIMM .
8. R a ’ a AC .

Installing and Removing a PCI Express x16 Card

CAUTION

When installing any PCI Express x16 card on the desktop board, ensure that it is fully seated in the PCI Express x16 connector before you power on the system. If the card is not fully seated in the PCI Express connector, an electrical short may result across the PCI Express connector pins. Depending on the over-current protection of the power supply, certain board components and/or traces may be damaged.

Installing a PCI Express x16 Card

1. Ob a "B Y B " a 23.
2. P a a PCI E 16 a a a a a a a a RM (F 17, A).
3. S a ’ a b a a ba a a (F 17, B).

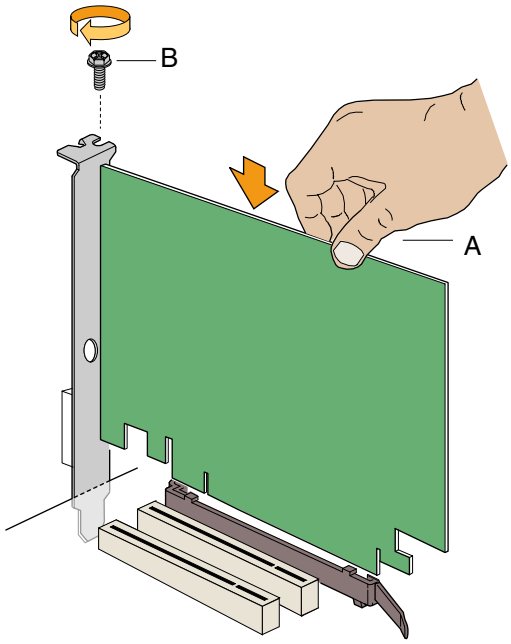


Figure 17. Inserting the PCI Express x16 Card

Removing the PCI Express x16 Card

F PCI E 16 a RM:

1. Ob a "B Y B " a 23.
2. R a a ’ a b a a ba a .
3. P ba RM a a .
4. P a a .

Connecting the IDE Cable

T IDE ab a b a . T ab ATA-66/100 a . F 18 a a ab .

NOTES

ATA-66/100 compatible cables are backward compatible with drives using slower IDE transfer protocols. If an ATA-66/100 disk drive and a disk drive using any other IDE transfer protocol are attached to the same cable, the maximum transfer rate between the drives may be reduced to that of the slowest drive.

Do not connect an ATA device as a slave on the same IDE cable as an ATAPI master device. For example, do not connect an ATA hard drive as a slave to an ATAPI CD-ROM drive.

F ab :

- Ob a "B Y B " a 23.
- A a ab (b) I b a (F 18, A).
- A a ab a (a a b a) (F 18, B).

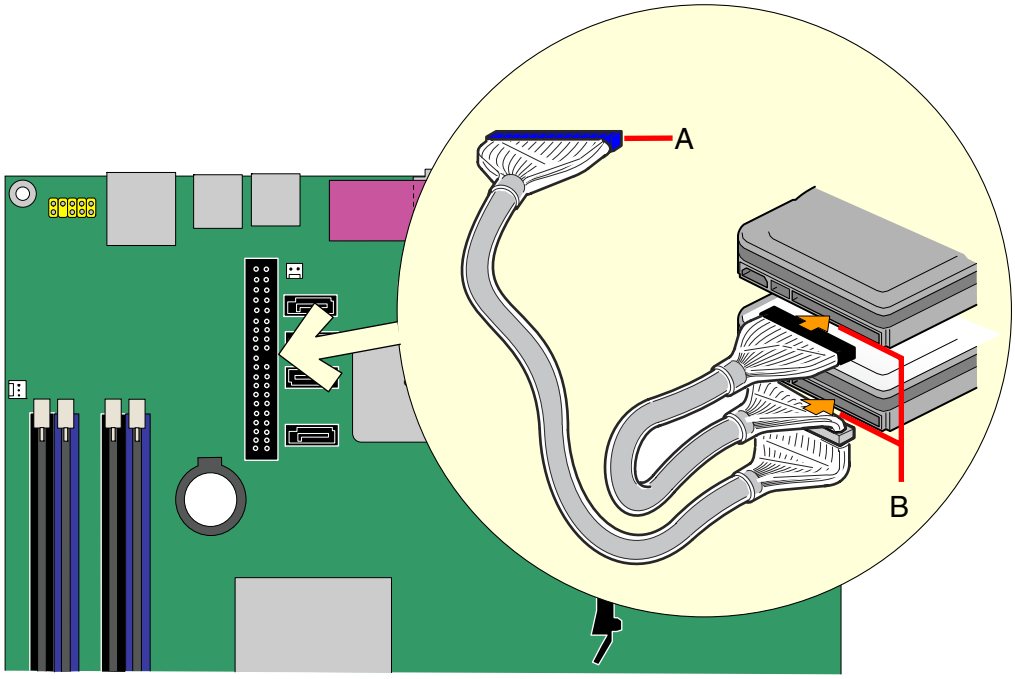


Figure 18. Connecting the IDE Cable

Connecting the Serial ATA (SATA) Cable

T SATA ab (4-) S a ATA a a
b a . F ab :

1. Ob a "B Y B " a 23.
2. A a ab b a (F 19, A).
3. A a ab (F 19, B).

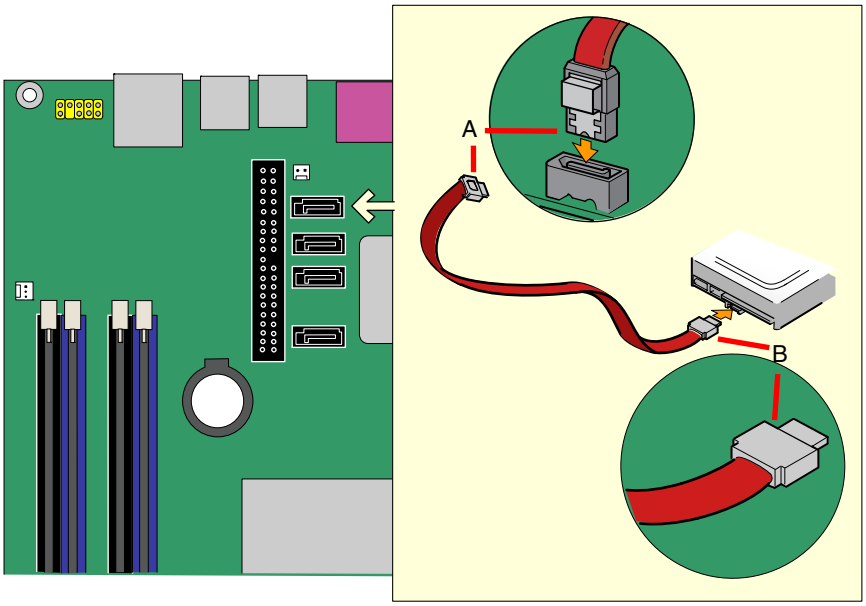
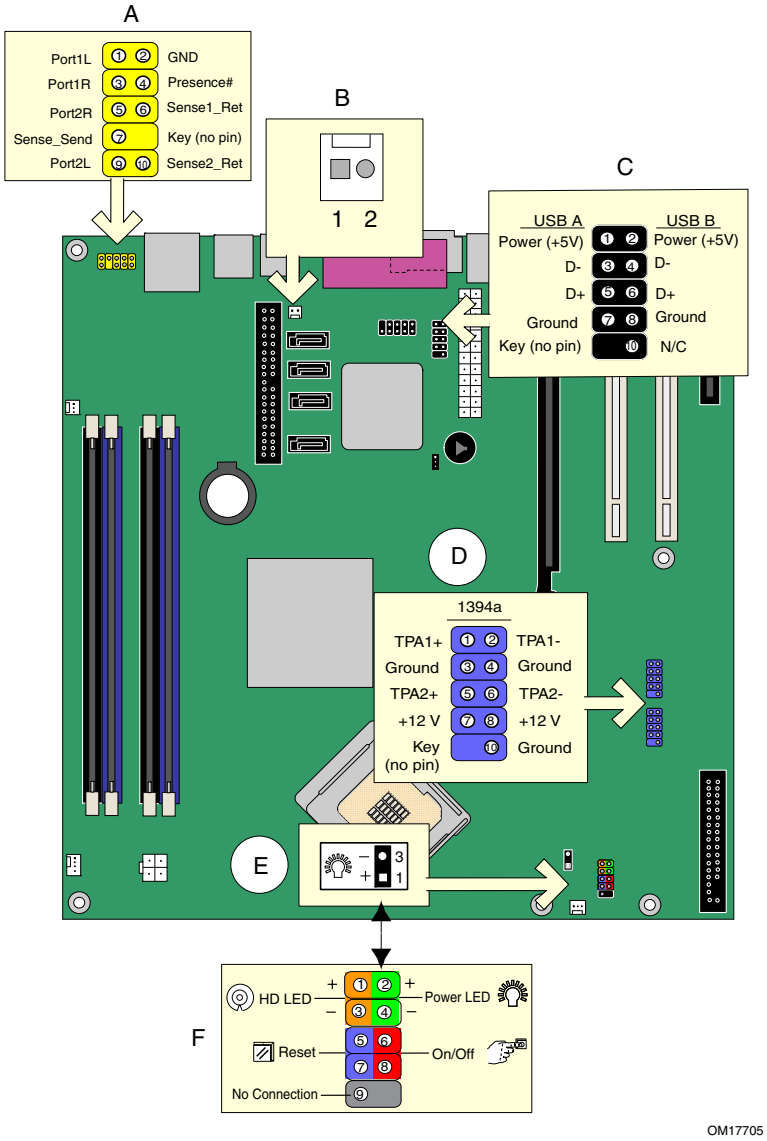


Figure 19. Connecting the Serial ATA Cable

Connecting Internal Headers

B ab a a , b a "B Y B " a 23. F 20 a a a .



Item	Description	Item	Description
A	Front panel audio	D	IEEE 1394a (two)
B	Chassis intrusion	E	Alternate power LED
C	Hi-Speed USB 2.0 (two)	F	Front panel

Figure 20. Internal Headers

Installing a Front Panel Audio Solution

F 20, A a 39 a a a a . Tab 6 a a a a .

Table 6. Front Panel Audio Header Signal Names for Intel® High Definition Audio

Pin	Signal Name	Pin	Signal Name
1	PORT 1L	2	GND
3	PORT 1R	4	PRESENCE#
5	PORT 2R	6	SENSE1_RETURN
7	SENSE_SEND	8	KEY (no pin)
9	PORT 2L	10	SENSE2_RETURN

T a ab a a a a a a , :

1. Ob a "B Y B " a 23.
2. T a a . T a AC .
3. R .
4. I a a a a a ab .

   NOTE: a a a a ba AC ’97 a a . R Tab 7 b a AC ’97 a a a a b a . T a a a b a a a I ® A S a a .

Table 7. AC ’97 Audio Header Signal Names

Pin	Signal Name	Pin	Signal Name
1	MIC	2	AUD_GND
3	MIC_BIAS	4	AUD_GND
5	FP_OUT_R	6	FP_RETURN_R
7	AUD_5V	8	KEY
9	FP_OUT_L	10	FP_RETURN_L

5. C a ab a a .
6. R a .

T ba a a , :

1. Ob a "B Y B " a 23.
2. T a a . T a AC .
3. R .
4. R a a ab .
5. R a .

Connecting USB 2.0 Headers

B USB 2.0 a , b a "B Y B " a 23. S F 20, C a 39 a b a USB 2.0 a . Tab 8 a USB 2.0 a .

Table 8. USB 2.0 Header Signal Names

USB Port A		USB Port B	
Pin	**Signal name**	**Pin**	**Signal name**
1	Power	2	Power
3	D-	4	D-
5	D+	6	D+
7	Ground	8	Ground
9	Key	10	No connect

Note: USB ports may be assigned as needed.

Connecting IEEE 1394 Headers

B IEEE 1394a a , b a "B Y B " a 23. S F 20, D a 39 a b IEEE 1394a a . Tab 9 a a .

Table 9. IEEE 1394a Header Signal Names

Pin	Signal Name	Pin	Signal Name
1	TPA1+	2	TPA1-
3	Ground	4	Ground
5	TPA2+	6	TPA2-
7	+12 V	8	+12 V
9	Key (no pin)	10	Ground

Connecting the Front Panel Header

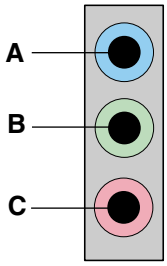
B a a , b a "B Y B " a 23. S F 20, F a 39 a - a a . Tab 10 a a a .

Table 10. Front Panel Header Signal Names

Pin	Signal	In/Out	Description	Pin	Signal	In/Out	Description
Hard Drive Activity LED (Orange)				**Power LED (Green)**			
1	HD_PWR	Out	Hard disk LED pull-up (330 Ω) to +5 V	2	HDR_BLNK_GRN	Out	Front panel green LED
3	HDA#	Out	Hard disk active LED	4	HDR_BLNK_YEL	Out	Front panel yellow LED
Reset Switch (Purple)				**On/Off Switch (Red)**			
5	Ground		Ground	6	SWITCH_ON#	In	Power switch
7	FP_RESET#	In	Reset switch	8	Ground		Ground
9	N/C		Not connected	10	No pin		No pin

Setting Up the Flexible 6-Channel Audio with Jack Re-tasking

A a S aT a I E I a CD-ROM, - a a a a b ab .



OM15694

Item	Description
A	Rear left/right out or Line In
B	Front left/right out
C	Center/LFE (Subwoofer) or Mic In

Figure 21. Back Panel Audio Connectors for Flexible 6-Channel Audio System

Multi-Channel Analog Audio

C a / (B) a a a / (A) b 4- a 6- a a a . F 6- a a , a a a LFE (C).

Connecting Fan and Power Cables

Connecting Fan Cables

F 22 a a a . C ’ a a ab
4- a a b a . C a a ab 3- a a .

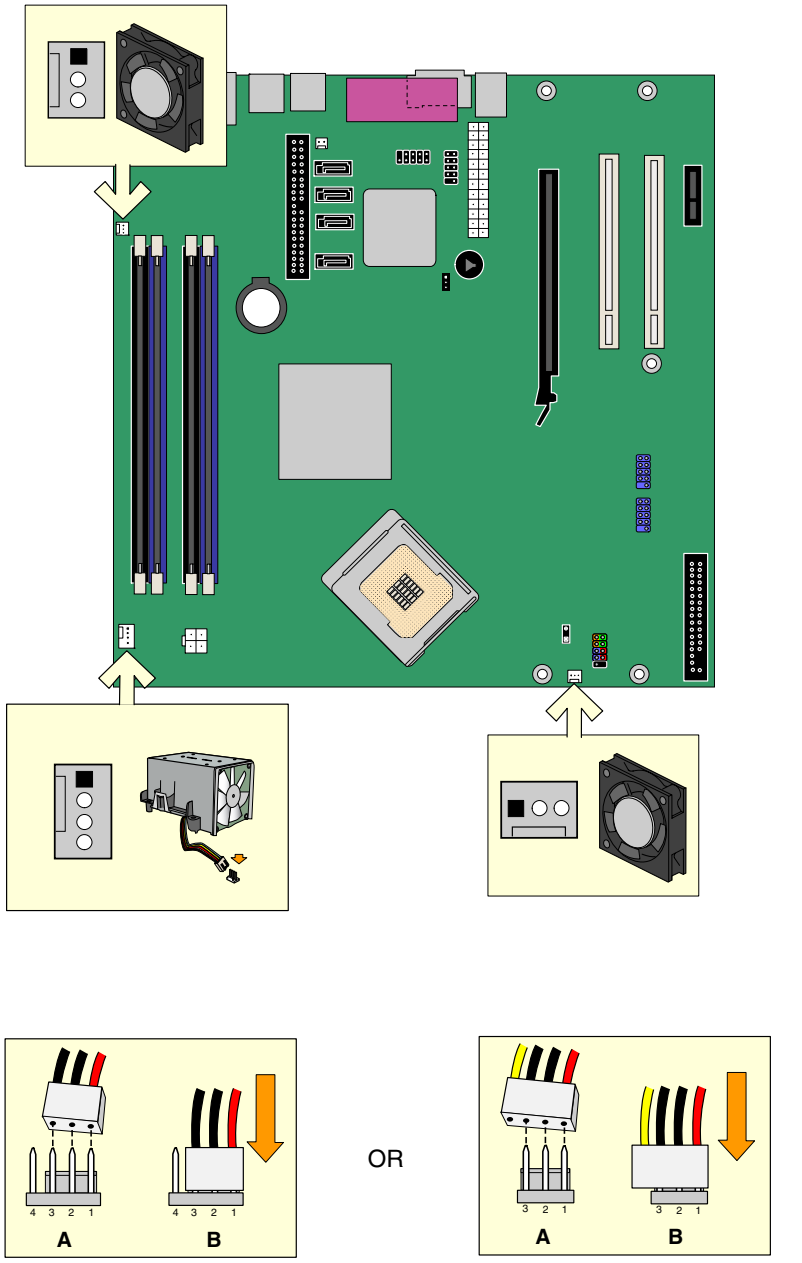


Figure 22. Location of Fan Headers

Connecting Power Cables

CAUTION

Failure to use an ATX12V power supply, or not connecting the 12 V (2x2) processor core voltage power supply connector to the desktop board may result in damage to the desktop board and/or power supply.

S Tab 3 a 13 . F 23 a
.

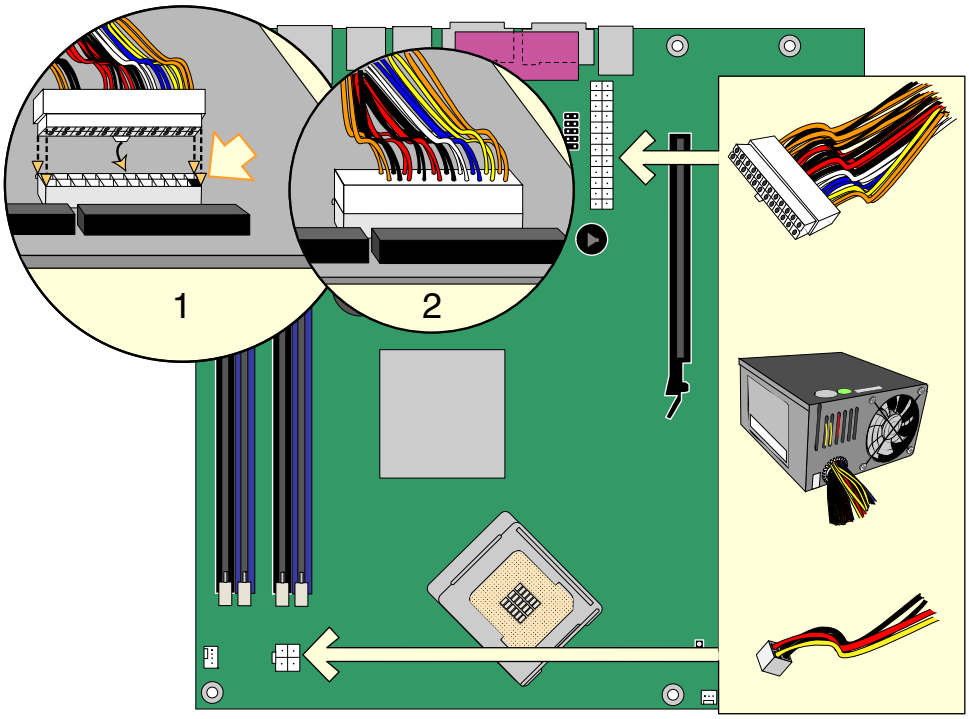
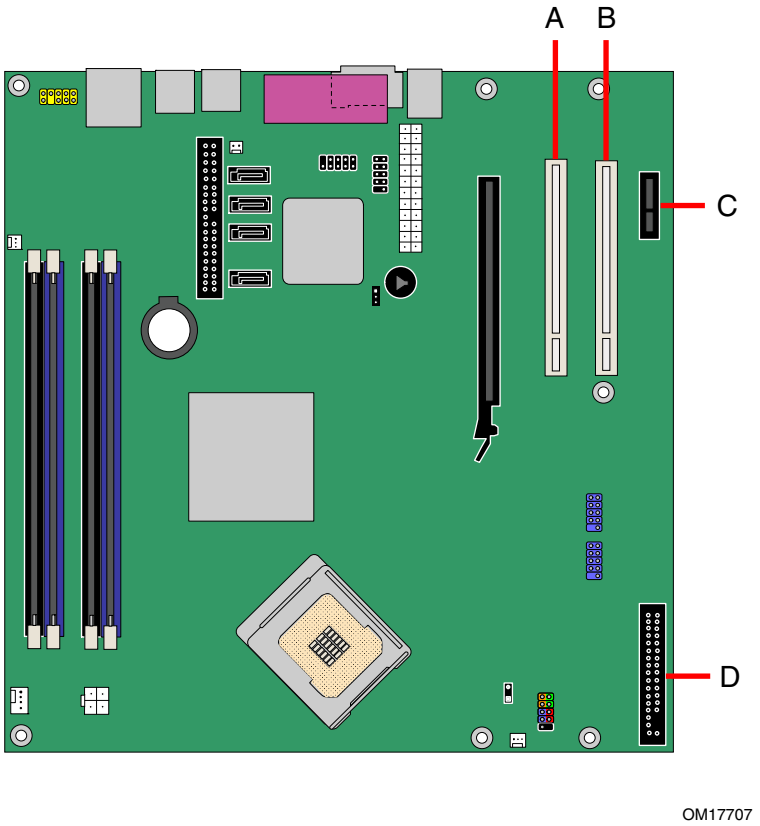


Figure 23. Connecting 2x12 Power Supply Cables

1. Ob a "B Y B " a 23.
2. C a ab 2 12 .
3. C 12 V a ab 2 2 .

Other Connectors

F 24 a PCI a - a , PCI E 1 , a .



Item	Description
A	PCI bus add-in card connector 1
B	PCI bus add-in card connector 2 (SMBus routed)
C	PCI Express x1 connector
D	Diskette drive connector

Figure 24. Location of Other Connectors on Desktop Board D945PAW

Setting the BIOS Configuration Jumper Block

NOTE

Always turn off the power and unplug the power cord from the computer before changing the jumper. Moving the jumper with the power on may result in unreliable computer operation.

F 25 a b a ’ BIOS a .

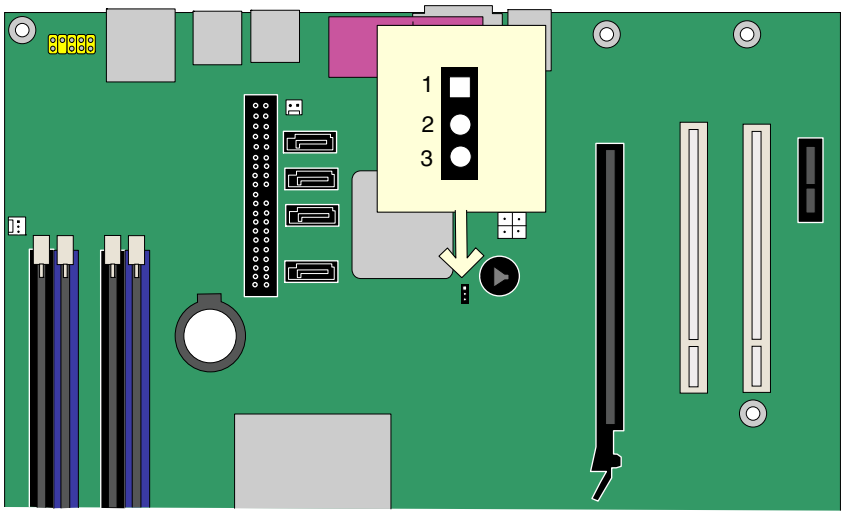


Figure 25. Location of the BIOS Configuration Jumper

T - BIOS b ab a b a a b BIOS S .
Tab 11 S a .

Table 11. Jumper Settings for the BIOS Setup Program Modes

Jumper Setting	Mode	Description
1 3	Normal (default) (1-2)	The BIOS uses the current configuration and passwords for booting.
1 3	Configure (2-3)	After the Power-On Self-Test (POST) runs, the BIOS displays the Maintenance Menu. Use this menu to clear passwords.
1 3	Recovery (None)	The BIOS recovers data from a recovery diskette in the event of a failed BIOS update.

Clearing Passwords

T a a b a a a a
b a .

1. Ob a "B Y B " a 23.
2. T a a . T . D
, AC (a a a).
3. R .
4. F a b (F 25).
5. P a 2-3 a b .

6. R a , , , a a b .
7. T a S a . S a Ma a .
8. U a C a Pa . P <E > a S a a -
a a a . S Y a <E >.
S a a a a a .
9. P <F10> a a a S .
10. T . D , AC .
11. R .
12. T a a , a 1-2 a b .

13. R a , , a .

Replacing the Battery

A - ba (CR2032) a - a CMOS . W a a , ba a a a a . W , a b ba . T a a ± 13 / a a 25 C 3.3 VSB a .

W a b a a , BIOS S a CMOS RAM (a , a a) b a a . R a ba a a . F 26 a 52 a ba .

CAUTION

Risk of explosion if the battery is replaced with an incorrect type. Batteries should be recycled where possible. Disposal of used batteries must be in accordance with local environmental regulations.

PRÉCAUTION

Risque d'explosion si la pile usagée est remplacée par une pile de type incorrect. Les piles usagées doivent être recyclées dans la mesure du possible. La mise au rebut des piles usagées doit respecter les réglementations locales en vigueur en matière de protection de l'environnement.

FORHOLDSREGEL

Eksplosionsfare, hvis batteriet erstattes med et batteri af en forkert type. Batterier bør om muligt genbruges. Bortskaffelse af brugte batterier bør foregå i overensstemmelse med gældende miljølovgivning.

OBS!

Det kan oppstå eksplosjonsfare hvis batteriet skiftes ut med feil type. Brukte batterier bør kastes i henhold til gjeldende miljølovgivning.

VIKTIGT!

Risk för explosion om batteriet ersätts med felaktig batterityp. Batterier ska kasseras enligt de lokala miljövårdsbestämmelserna.

VARO

Räjähdysvaara, jos pariston tyyppi on väärä. Paristot on kierrätettävä, jos se on mahdollista. Käytetyt paristot on hävitettävä paikallisten ympäristömääräysten mukaisesti.

VORSICHT

Bei falschem Einsetzen einer neuen Batterie besteht Explosionsgefahr. Die Batterie darf nur durch denselben oder einen entsprechenden, vom Hersteller empfohlenen Batterietyp ersetzt werden. Entsorgen Sie verbrauchte Batterien den Anweisungen des Herstellers entsprechend.

AVVERTIMENTO

Esiste il pericolo di un esplosione se la pila non viene sostituita in modo corretto. Utilizzare solo pile uguali o di tipo equivalente a quelle consigliate dal produttore. Per disfarsi delle pile usate, seguire le istruzioni del produttore.

PRECAUCIÓN

Existe peligro de explosión si la pila no se cambia de forma adecuada. Utilice solamente pilas iguales o del mismo tipo que las recomendadas por el fabricante del equipo. Para deshacerse de las pilas usadas, siga igualmente las instrucciones del fabricante.

WAARSCHUWING

Er bestaat ontploffingsgevaar als de batterij wordt vervangen door een onjuist type batterij. Batterijen moeten zoveel mogelijk worden gerecycled. Houd u bij het weggooien van gebruikte batterijen aan de plaatselijke milieuwetgeving.

ATENÇÃO

Haverá risco de explosão se a bateria for substituída por um tipo de bateria incorreto. As baterias devem ser recicladas nos locais apropriados. A eliminação de baterias usadas deve ser feita de acordo com as regulamentações ambientais da região.

AŚCIAROŽZNAŚĆ

Існуе рызыка выбуху, калі заменены акумулятар неправільнага тыпу. Акумулятары павінны, па магчымасці, перепрацоўвацца. Пазбаўляцца ад старых акумулятараў патрэбна згодна з мясцовым заканадаўствам па экалогіі.

UPOZORNÌNÍ

V případě výměny baterie za nesprávný druh může dojít k výbuchu. Je-li to možné, baterie by měly být recyklovány. Baterie je třeba zlikvidovat v souladu s místními předpisy o životním prostředí.

Προσοχή

Υπάρχει κίνδυνος για έκρηξη σε περίπτωση που η μπαταρία αντικατασταθεί από μία λανθασμένου τύπου. Οι μπαταρίες θα πρέπει να ανακυκλώνονται όταν κάτι τέτοιο είναι δυνατό. Η απόρριψη των χρησιμοποιημένων μπαταριών πρέπει να γίνεται σύμφωνα με τους κατά τόπο περιβαλλοντικούς κανονισμούς.

VIGYAZAT

Ha a telepet nem a megfelelő típusú telepre cseréli, az felrobbanhat. A telepeket lehetőség szerint újra kell hasznosítani. A használt telepeket a helyi környezetvédelmi előírásoknak megfelelően kell kiselejtezni.

注意

異なる種類の電池を使用すると、爆発の危険があります。リサイクルが可能な地域であれば、電池をリサイクルしてください。使用後の電池を破棄する際には、地域の環境規制に従ってください。

AWAS

Risiko letupan wujud jika bateri digantikan dengan jenis yang tidak betul. Bateri sepatutnya dikitar semula jika boleh. Pelupusan bateri terpakai mestilah mematuhi peraturan alam sekitar tempatan.

OSTRZEŻENIE

Istnieje niebezpieczeństwo wybuchu w przypadku zastosowania niewłaściwego typu baterii. Zużyte baterie należy w miarę możliwości utylizować zgodnie z odpowiednimi przepisami ochrony środowiska.

PRECAUȚIE

Risc de explozie, dacă bateria este înlocuită cu un tip de baterie necorespunzător. Bateriile trebuie reciclate, dacă este posibil. Depozitarea bateriilor uzate trebuie să respecte reglementările locale privind protecția mediului.

ВНИМАНИЕ

При использовании батареи несоответствующего типа существует риск ее взрыва. Батареи должны быть утилизированы по возможности. Утилизация батарей должна проводится по правилам, соответствующим местным требованиям.

UPOZORNENIE

Ak batériu vymeníte za nesprávny typ, hrozí nebezpečenstvo jej výbuchu.
Batérie by sa mali podľa možnosti vždy recyklovať. Likvidácia použitých batérií sa musí vykonávať v súlade s miestnymi predpismi na ochranu životného prostredia.

POZOR

Zamenjava baterije z baterijo drugačnega tipa lahko povzroči eksplozijo.
Če je mogoče, baterije reciklirajte. Rabljene baterije zavrzite v skladu z lokalnimi okoljevarstvenimi predpisi.

การระวัง

ระวังการระเบิดที่เกิดจากเปลี่ยนแบตเตอรี่ผิดประเภท หากเป็นไปได้ ควรนำแบตเตอรี่ไปรีไซเคิล การทิ้งแบตเตอรี่ใช้แล้วต้องเป็นไปตามกฎข้อบังคับด้านสิ่งแวดล้อมของท้องถิ่น.

UYARI

Yanlış türde pil takıldığında patlama riski vardır. Piller mümkün olduğunda geri dönüştürülmelidir. Kullanılmış piller, yerel çevre yasalarına uygun olarak atılmalıdır.

ОСТОРОГА

Використовуйте батареї правильного типу, інакше існуватиме ризик вибуху. Якщо можливо, використані батареї слід утилізувати. Утилізація використаних батарей має бути виконана згідно місцевих норм, що регулюють охорону довкілля.

UPOZORNĚNÍ

V případě výměny baterie za nesprávný druh může dojít k výbuchu. Je-li to možné, baterie by měly být recyklovány. Baterie je třeba zlikvidovat v souladu s místními předpisy o životním prostředí.

ETTEVAATUST

Kui patarei asendatakse uue ebasobivat tüüpi patareiga, võib tekkida plahvatusoht. Tühjad patareid tuleb võimaluse korral viia vastavasse kogumispunkti. Tühjade patareide äraviskamisel tuleb järgida kohalikke keskkonnakaitse alaseid reegleid.

FIGYELMEZTETÉS

Ha az elemet nem a megfelelő típusúra cseréli, felrobbanhat. Az elemeket lehetőség szerint újra kell hasznosítani. A használt elemeket a helyi környezetvédelmi előírásoknak megfelelően kell kiselejtezni.

UZMANĪBU

Pastāv eksplozijas risks, ja baterijas tiek nomainītas ar nepareiza veida baterijām. Ja iespējams, baterijas vajadzētu nodot attiecīgos pieņemšanas punktos. Bateriju izmešanai atkritumos jānotiek saskaņā ar vietējiem vides aizsardzības noteikumiem.

DĖMESIO

Naudojant netinkamo tipo baterijas įrenginys gali sprogti. Kai tik įmanoma, baterijas reikia naudoti pakartotinai. Panaudotas baterijas išmesti būtina pagal vietinius aplinkos apsaugos nuostatus.

ATTENZJONI

Riskju ta' splużjoni jekk il-batterija tinbidel b'tip ta' batterija mhux korrett. Il-batteriji għandhom jiġu riċiklati fejn hu possibbli. Ir-rimi ta' batteriji użati għandu jsir skond ir-regolamenti ambjentali lokali.

OSTRZEŻENIE

Ryzyko wybuchu w przypadku wymiany na baterie niewłaściwego typu. W miarę możliwości baterie należy poddać recyklingowi. Zużytych baterii należy pozbywać się zgodnie z lokalnie obowiązującymi przepisami w zakresie ochrony środowiska.

T a ba , :

1. Ob a "B Y B " (a 23).
2. T a a . D ,
   AC (a a a).
3. R .
4. L a ba b a (F 26).
5. W a a -b a , ba . N
   a + a - ba .
6. I a ba , + a - .
7. R a .

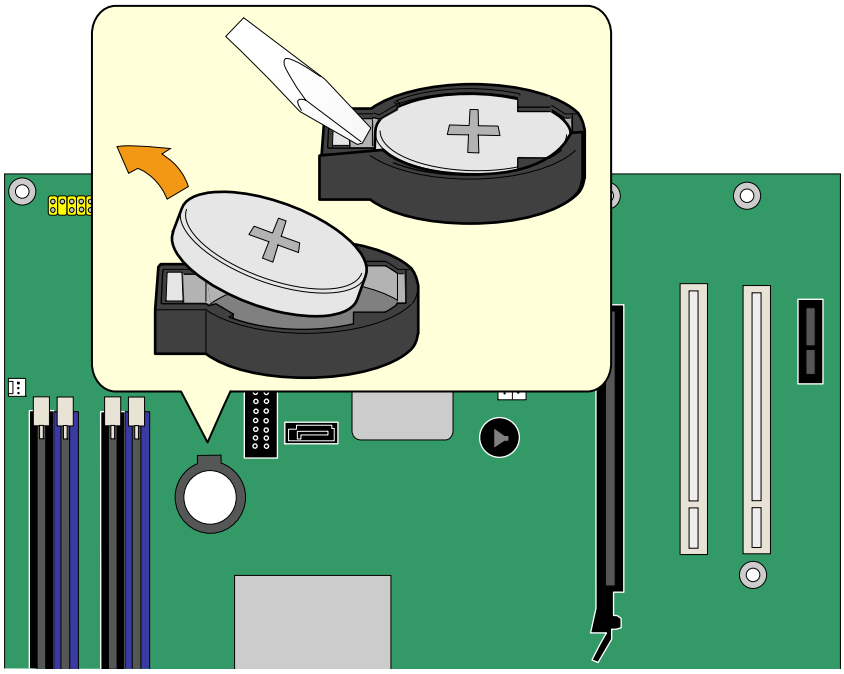


Figure 26. Removing the Battery

3 Updating the BIOS

T BIOS S a a b a a BIOS . T BIOS S a a b <F2> a P -O S -T (POST) b a b a b b .

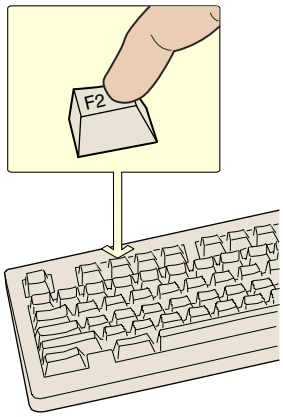


Figure 27. F2 Key

T a a BIOS b I E BIOS U a I a M U a , a BIOS a a a .

Updating the BIOS with the Intel® Express BIOS Update Utility

W I E BIOS U a a a BIOS W . T BIOS a a a a a b a I ® F a M U a U a a - W -ba a a a .

T a BIOS I E BIOS U a :

1. G I W W W b :
   :// . . / / b a / /
2. Na a D945PAW a , [view] Latest BIOS updates," a E BIOS U a .
3. D a a . (Y a a a a . T a a BIOS a .)
4. C a a a . T . Y b b a a E BIOS U a .
5. D b - ab a a a a . T a a .
6. F a b BIOS a .

Updating the BIOS with the Iflash Memory Update Utility

W I a BIOS a a a BIOS a
b ab a. T a a ab W b a a a
b ab a a a a a a a BIOS.

Obtaining the BIOS Update File

Y a a a BIOS b BIOS a . T BIOS a
a - a a a a a a BIOS. T
BIOS a a :

- N BIOS
- BIOS
- I F a M U a U

Y a b a BIOS a b a a
D B a D945PAW a I W W W b a :

:// . . / / b a /

Na a D945PAW a , [view] Latest BIOS updates," a I a BIOS
U a .

NOTE

Review the instructions distributed with the update utility before attempting a BIOS update.

T I a M U a a :

- U a BIOS a
- U a a a BIOS

Updating the BIOS

CAUTION

The AUTOEXEC.BAT file provided with the update files updates the BIOS. Do not interrupt the process or the system may not function.

1. B BIOS a A. D b ,
   AUTOEXEC.BAT a a a a BIOS a
   .
2. W a , a a a
   a b .
3. A b , BIOS (b) a a
   a . I a a a , <E > POST a .

Recovering the BIOS

I a a BIOS a ; , a ,
BIOS b a a . T a BIOS a a a .
T S a . S a 46
a S .

NOTE

Because of the small amount of code available in the boot block area, there is no video support. You will not see anything on the screen during this procedure. Monitor the procedure by listening to the speaker and looking at the diskette drive LED.

1. T , ' , a a a
   a .
2. R a a a b (F 25).
3. R a a b S .

4. I b ab BIOS a A.
5. R a , , , a a
   b . T a a .
6. L a :
   - U a , A b a . I ab a , b
     a a a A a a (a) a
     BIOS . D A a b a a b b a
     b b . T a a BIOS
     .
   - A b a a a BIOS .
7. I a , 1 a a .
8. I , , a .
9. R a .
10. O b , a ba 1-2 a b a
    S .

11. L a a A, a , a ,
    .
12. T a BIOS a .

A Error Messages and Indicators

D B a D945PAW POST a :

- B a b
- B a a a

BIOS Beep Codes

T BIOS a a b (b) POST a a (a a a a a) a a ROM . Tab 12 BIOS .

Table 12. Beep Codes

Beep	Description
3	No memory
Siren	CPU overheat (on reboot)

BIOS Error Messages

W a ab POST, BIOS a a a b b . Tab 13 a a a BIOS a .

Table 13. BIOS Error Messages

Error Message	Explanation
PROCESSOR_THERMAL_TRIP_ERROR	CPU was previously shutdown due to a thermal event (overheating).
MULTI_BIT_ECC_ERROR	The firmware has detected that a Multi-Bit ECC Error occurred.
SINGLE_BIT_ECC_ERROR	The firmware has detected that a Single-Bit ECC Error occurred.
CMOS_BATTERY_ERROR	The firmware has detected that a CMOS battery failure occurred.
CMOS_CHECKSUM_ERROR	The firmware has detected that a CMOS Checksum Error occurred.
CMOS_TIMER_ERROR	The firmware has detected that the system date/time has not been set.
MEMORY_SIZE_DECREASE_ERROR	The firmware has detected that the system memory has decreased.
INTRUDER_DETECTION_ERROR	The system chassis was opened.
SPD_TOLER_ERROR	SERIAL PRESENCE DETECT (SPD) device data missing or inconclusive. Properly programmed SPD device data is required for reliable operation. DDR2 533 MHz memory assumed at slowest timings.
MEM_OPTIMAL_ERROR	The installed amount of memory in Channel A is not equal to the amount of memory in Channel B. Maximum memory performance is achieved with equal amounts of memory installed in each channel.

B Regulatory Compliance

T a a a a a D B a D945PAW:

- Sa a
- E a U D a a C a
- P E a
- E a C a b (EMC) a
- P a a

Safety Regulations

D B a D945PAW a a a Tab 14 a a a b .

Table 14. Safety Regulations

Regulation	Title
UL 60950-1:2003/ CSA C22.2 No. 60950-1-03	Information Technology Equipment – Safety - Part 1: General Requirements (USA and Canada)
EN 60950-1:2002	Information Technology Equipment – Safety - Part 1: General Requirements (European Union)
IEC 60950-1:2001, First Edition	Information Technology Equipment – Safety - Part 1: General Requirements (International)

European Union Declaration of Conformity Statement

W , I C a , a b a I ® D B a D945PAW a a ab a a CE a , E a C D 89/336/EEC (EMC D) a C D 73/23/EEC (Sa /L V a D).

T CE a a a b a b a EU .

T E a D 89/336/EEC a 73/23/EEC.

Čeština Tento výrobek odpovídá požadavkům evropských směrnic 89/336/EEC a 73/23/EEC.

Dansk Dette produkt er i overensstemmelse med det europæiske direktiv 89/336/EEC & 73/23/EEC.

Dutch Dit product is in navolging van de bepalingen van Europees Directief 89/336/EEC & 73/23/EEC.

Eesti Antud toode vastab Euroopa direktiivides 89/336/EEC ja 73/23/EEC kehtestatud nõuetele.

Suomi Tämä tuote noudattaa EU-direktiivin 89/336/EEC & 73/23/EEC määräyksiä.

Français Ce produit est conforme aux exigences de la Directive Européenne 89/336/EEC & 73/23/EEC.

Deutsch Dieses Produkt entspricht den Bestimmungen der Europäischen Richtlinie 89/336/EEC & 73/23/EEC.

Ελληνικά Το παρόν προϊόν ακολουθεί τις διατάξεις των Ευρωπαϊκών Οδηγιών 89/336/ΕΟΚ και 73/23/ΕΟΚ.

Magyar E termék megfelel a 89/336/EEC és 73/23/EEC Európai Irányelv előírásainak.

Icelandic Þessi vara stenst reglugerð Evrópska Efnahags Bandalagsins númer 89/336/ EEC & 73/23/EEC.

Italiano Questo prodotto è conforme alla Direttiva Europea 89/336/EEC & 73/23/EEC.

Latviešu Šis produkts atbilst Eiropas Direktīvu 89/336/EEC un 73/23/EEC noteikumiem.

Lietuvių Šis produktas atitinka Europos direktyvų 89/336/EEC ir 73/23/EEC nuostatas.

Malti Dan il-prodott hu konformi mal-provvedimenti tad-Direttivi Ewropej 89/336/EEC u 73/23/EEC.

Norsk Dette produktet er i henhold til bestemmelsene i det europeiske direktivet 89/336/ EEC & 73/23/EEC.

Polski Niniejszy produkt jest zgodny z postanowieniami Dyrektyw Unii Europejskiej 89/336/EWG i 73/23/EWG.

Portuguese Este produto cumpre com as normas da Diretiva Européia 89/336/EEC & 73/23/EEC.

Español Este producto cumple con las normas del Directivo Europeo 89/336/EEC & 73/23/EEC.

Slovensky Tento produkt je v súlade s ustanoveniami európskych direktív 89/336/EEC a 73/23/EEC.

Slovenščina Izdelek je skladen z določbami evropskih direktiv 89/336/EGS in 73/23/EGS.

Svenska Denna produkt har tillverkats i enlighet med EG-direktiv 89/336/EEC & 73/23/EEC.

Türkçe Bu ürün, Avrupa Birliği'nin 89/336/EEC ve 73/23/EEC yönergelerine uyar.

Product Ecology Statements

T a a a
a .

Recycling Considerations

A a a b , I a I P
R P a a a I ’ b a
a .

P a ://. . / / / / /R P a .
a a , , a a ab a ,
, a , .

中文

作为其对环境责任之承诺的部分，英特尔已实施 Intel Product Recycling Program（英特尔产品回收计划），以允许英特尔品牌产品的零售消费者将使用过的产品退还至指定地点作恰当的重复使用处理。

请参考 ://. . / / / / /R P a .
了解此计划的详情，包括涉及产品之范围、回收地点、运送指导、条款和条件等。

Deutsch

A T I E a U a a U a I P -
R a , a E a I Ma
, b a P a a S a R
b .

D a P a , a P , ba
S a , V a a , B ., S a
://. . / / / / /R P a ..

Español

C a ab a a b a , I a a a a a
a I , a a I
a a a a a a a .

C a ://. . / / / / /R P a . a a
a a a, aba a, a b ,
, , .

Français

Da a a a , I a
a I P R P a (P a a I)
a a I a
a .

V a a W b ://. . / / / /R P a .
a a , a , a b ,
, a , .

日本語

インテルでは、環境保護活動の一環として、使い終えたインテル
ブランド製品を指定の場所へ返送していただき、リサイクルを適切に行えるよう、インテル製品リサイクル
プログラムを発足させました。

対象製品、返送先、返送方法、ご利用規約など、このプログラムの詳細情報は、
://. . / / / /R P a .（英語）をご覧ください。

Malay

S ba a ba a a a a a a a a a ab a a , I a
a a a a P a K a S a P b a a a- a
a a I a a a a - a a a a
a b .

S a ://. . / / / /R P a .
a a a b -b a , a a a a , a - a
a, a a a a a a , a & a a , b.

Portuguese

C a a a b , a I P a a
R a P a a a a a I a a a
a a , a a a a a a.

C ://. . / / / /R P a . (
I) a a b a b a a, b ,
a , a , , .

Russian

В качестве части своих обязательств к окружающей среде, в Intel создана программа утилизации продукции Intel (Product Recycling Program) для предоставления конечным пользователям марок продукции Intel возможности возврата используемой продукции в специализированные пункты для должной утилизации.

Пожалуйста, обратитесь на веб-сайт :// . . / / / / /R P a . за информацией об этой программе, принимаемых продуктах, местах приема, инструкциях об отправке, положениях и условиях и т.д.

Türkçe

Intel, çevre sorumluluğuna bağımlılığının bir parçası olarak, perakende tüketicilerin Intel markalı kullanılmış ürünlerini belirlenmiş merkezlere iade edip uygun şekilde geri dönüştürmesini amaçlayan Intel Ürünleri Geri Dönüşüm Programı'nı uygulamaya koymuştur.

Bu programın ürün kapsamı, ürün iade merkezleri, nakliye talimatları, kayıtlar ve şartlar v.s dahil bütün ayrıntılarını ögrenmek için lütfen http://www.intel.com/intel/other/ehs/product_ecology/Recycling_Program.htm web sayfasına gidin.

Lead Free Desktop Board

T b a a .

Table 15. Lead Free Desktop Board

Description	Mark
Lead-Free: The symbol is used to identify electrical and electronic assemblies and components in which the lead (Pb) concentration level in any of the raw materials and the end product is not greater than 0.1% by weight (1000 ppm). This symbol is also used to indicate conformance to lead-free requirements and definitions adopted under the European Union's Restriction on Hazardous Substances (RoHS) directive, 2002/95/EC.	

EMC Regulations

D B a D945PAW EMC a a Tab 16
a a a b .

Table 16. EMC Regulations

Regulation	Title
FCC Class B	Title 47 of the Code of Federal Regulations, Parts 2 and 15, Subpart B, Radio Frequency Devices. (USA)
ICES-003 (Class B)	Interference-Causing Equipment Standard, Digital Apparatus. (Canada)
EN55022: 1998 (Class B)	Limits and methods of measurement of Radio Interference Characteristics of Information Technology Equipment. (European Union)
EN55024: 1998	Information Technology Equipment – Immunity Characteristics Limits and methods of measurement. (European Union)
AS/NZS CISPR 22 (Class B)	Australian Communications Authority, Standard for Electromagnetic Compatibility. (Australia and New Zealand)
CISPR 22, 3rd Edition, (Class B)	Limits and methods of measurement of Radio Disturbance Characteristics of Information Technology Equipment. (International)
CISPR 24: 1997	Information Technology Equipment – Immunity Characteristics – Limits and Methods of Measurement. (International)
VCCI (Class B)	Voluntary Control for Interference by Information Technology Equipment (Japan)

Ja a Ka a a a : T a C a B ba a a
V a C C I I a T E (VCCI). I
a a a a , a a a
. I a a a a a .

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＢ情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

K a C a B a a a : T a
EMC . Y a a a -
a .

이 기기는 가정용으로 전자파적합등록을 한 기기로서
주거지역에서는 물론 모든 지역에서 사용할 수 있습니다.

Product Certification Markings (Board Level)

D B a D945PAW a a a Tab 17:

Table 17. Product Certification Markings

Description	Mark
UL joint US/Canada Recognized Component mark. Includes adjacent UL file number for Intel desktop boards: E210882.	c US
FCC Declaration of Conformity logo mark for Class B equipment. Includes Intel name and D945PAW model designation.	Trade Name Model Number
CE mark. Declaring compliance to European Union (EU) EMC directive (89/336/EEC) and Low Voltage directive (73/23/EEC).	
Australian Communications Authority (ACA) C-tick mark. Includes adjacent Intel supplier code number, N-232.	
Japan VCCI (Voluntary Control Council for Interference) mark.	
S. Korea MIC (Ministry of Information and Communication) mark. For information about MIC certification, go to :// . . / / b a / /	MIC
Taiwan BSMI (Bureau of Standards, Metrology and Inspections) mark. Includes adjacent Intel company number, D33025.	
Printed wiring board manufacturer's recognition mark. Consists of a unique UL recognized manufacturer's logo, along with a flammability rating (solder side).	V-0