



Toshiba Qosmio X500 Maintenance Manual

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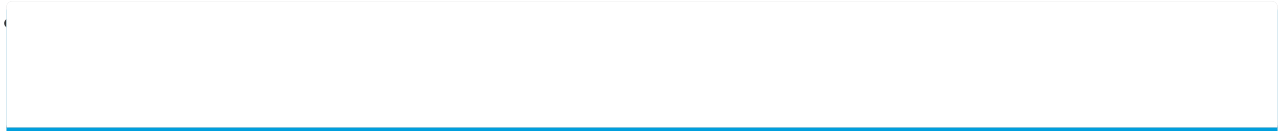
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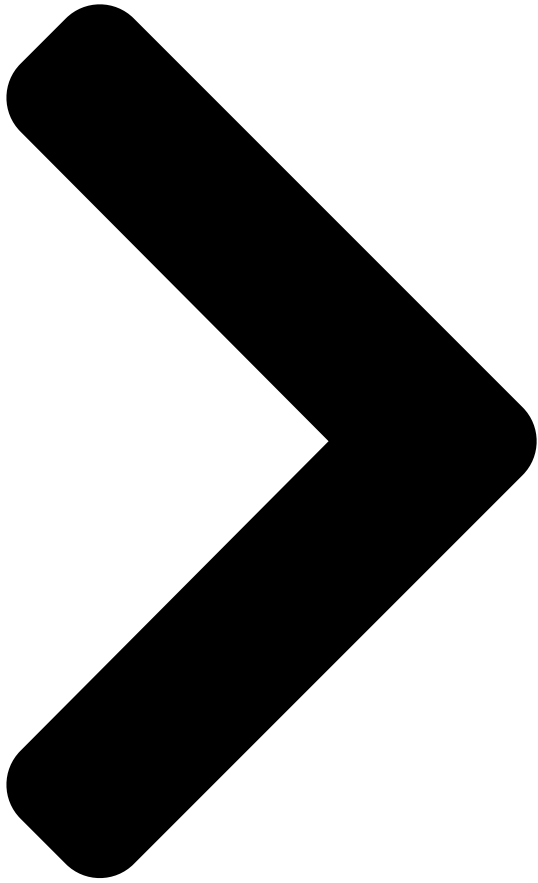
Troubleshooting

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Toshiba Personal Computer
Qosmio X500

Maintenance Manual

TOSHIBA CORPORATION

File Number 960-Q08

Qosmio X500 Maintenance Manual (960-Q08)

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X500-q840s user's guide (237 pages)

[Laptop Toshiba Satellite P500 User Manual](#)

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[Laptop Toshiba Qosmio X70 User Manual](#)

User guide (197 pages)

Summary of Contents for Toshiba Qosmio X500

[Page 1](#) Toshiba Personal Computer Qosmio X500 Maintenance Manual TOSHIBA CORPORATION File Number 960-Q08 Qosmio X500 Maintenance Manual (960-Q08)

[Page 2](#) The information presented in this manual has been reviewed and validated for accuracy. The included set of instructions and descriptions are accurate for the Qosmio X500 series at the time of this manual's production. However, succeeding computers and manuals are subject to change without notice.

[Page 3](#) NOTE: "Note" contains general information that relates to your safe maintenance service. Improper repair of the computer may result in safety hazards. Toshiba requires service technicians and authorized dealers or service providers to ensure the following safety precautions are adhered to strictly.

[Page 4](#) The manual is divided into the following parts: Chapter 1 Hardware Overview describes the Qosmio X500 system unit and each FRU. Chapter 2 Troubleshooting Procedures explains how to diagnose and resolve FRU problems. Chapter 3 Test and Diagnostics describes how to perform test and diagnostic operations for maintenance service.

[Page 5](#) Text that you are instructed to type in is shown in the boldface type below: DISK COPY A: B: The display Text generated by the computer that appears on its display is presented in the typeface below: Format complete System transferred Qosmio X500 Maintenance Manual (960-Q08)

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[Page 17: Features](#)

Chapter 1 Hardware Overview Features 1.1 Features The Qosmio X500 features are listed below. □ Microprocessor Microprocessor that is used will be different by the model. It supports processors as follows Intel® Core(TM) i7-720QM processor 1.6GHZ,1.73GHz Additional processor may be introduced □...

[Page 18](#) Internal stereo speaker, Internal MIC external monaural microphone connector, stereo headphone connector. □ Wireless LAN Some computers in this series are equipped with a Wireless LAN card. □ LAN/MODEM Connectors for LAN and Modem are separately mounted. □ 1394 One 1394 port is equipped. Qosmio X500 Maintenance Manual (960-Q08)

[Page 19](#) XD/MS/MS pro/SD/MMC are supported □ Bluetooth Some computers in this series offer Bluetooth wireless communication functionality. This module is Version 2.1+EDR. □ Security Kensington Lock, Fingerprint -Enhanced Lock is also equipped. □ HDD password HDD security function Qosmio X500 Maintenance Manual (960-Q08)

[Page 20: Figure 1-1-1 Front Of The Computer](#)

11. Power Button* 12. Internet Button* 13. CD/ DVD Button* 14. Previous Button* 15. Volume Down Button* 16. Mute Button* 17. Play/Pause Button* 18. Next Button* 19. Volume Up Button*
Figure 1-1-1 Front of the computer Qosmio X500 Maintenance Manual (960-Q08)

[Page 21: System Block Diagram](#)

Chapter 1 Hardware Overview 1.2 System Block Diagram Figure 1-2-1 shows the system block diagram. Figure 1-2-1 System block diagram for Intel Platform Qosmio X500 Maintenance Manual (960-Q08)

[Page 22](#) □ DMA controller □ Advanced Programmable Interrupt Controller (APIC) □ USB Controllers □ Gigabit Ethernet Controller □ RTC □ GPIO □ Enhanced Power Management □ SMBus 2.0 □ High Definition Audio Controller □ 676-pin 31mmx31mm mBGA Package Qosmio X500 Maintenance Manual (960-Q08)

[Page 23](#) The transfer speed of data receiving is 56kbps, of data sending is 33.6kbps and of FAX is 14.4kbps. Actual speed depends on the quality of the line used. Connected to telephone line through RJ11 MOD Bluetooth Bluetooth V2.1+EDR. (BTO) Qosmio X500 Maintenance Manual (960-Q08)

[Page 24: Inch Hard Disk Drive](#)

Depth (mm) 100.2 +/- 0.25 ions Weight (g) 97/98 97/98 //10 101//102 Parameter Standard value FUJITSU FUJITSU FUJITSU FUJITSU FUJITSU MJA2160B MJA2250BH MJA2320B MJA240 MJA2500BH Width (mm) Outline Height dimensi (mm) Depth (mm) 101(Max) Weight Qosmio X500 Maintenance Manual (960-Q08)

[Page 25: Table 1-3-3 2.5-Inch Hdd Specifications](#)

250GB 320GB 400 GB 500GB Speed (RPM) 5,400 Data transfer Rate - To/From Media 363~952 typical - T0/From Host 3Gbps (150MB/s) 3Gbps(150MB/s) bus transfer rate (MB/s) Average random seek time (read) (ms) Power-on-to-ready (sec) 3.5(typ)/9.5(Max) Qosmio X500 Maintenance Manual (960-Q08)

[Page 26](#) Storage size (formatted) Speed (RPM) 5,400 Data transfer Rate - To/From Media 875MB/s Max. - T0/From Host 3Gbps bus transfer rate (MB/s) 875MB/s Max. 3Gbps Average random seek time (read) (ms) Power-on-to-ready (sec) 3.5 sec Qosmio X500 Maintenance Manual (960-Q08)

[Page 27: Optical Drive](#)

The DVD Super Multi drive is shown in Figure 1-4-1. The dimensions and specifications of the DVD Super Multi drive are described in Table 1-4-2, Table 1-4-3, Table 1-4-4, Table 1- 4-5. Figure 1-4-1 DVD Super Multi drive Qosmio X500 Maintenance Manual (960-Q08)

[Page 28: Table 1-4-2 Dvd Super Multi Drive Outline Dimensions](#)

Panasonic Panasonic Maker (UJ240/J890ADTJR-A) (UJ141/UJ890EDTJR-A) Width (mm) Outline Height (mm) 12.7 dimensions Depth (mm) Mass (g) Parameter Standard value TSST TSST Maker (TS-L633C) (TS-L633Y) Width (mm) Outline Height (mm) 12.7 dimensions Depth (mm) Mass (g) Qosmio X500 Maintenance Manual (960-Q08)

[Page 29: Table 1-4-3 Hlds Dvd Super Multi Drive Specifications](#)

(8x Speed disc: 3.3x CLV, 8x ZCLV) CD-R 10x CLV, 16x, 24x ZCLV CD-RW 4x, 10x CLV, 16x ZCLV Burst Transfer PIO mode4/Multi word mode2/Ultra DMA mode2 mode CD-ROM 130ms (Typ.) Access time (ms) (Random) DVD-ROM 135ms (Typ.) Buffer memory Qosmio X500 Maintenance Manual (960-Q08)

[Page 30: Table 1-4-4 Panasonic Dvd Super Multi Drive Specifications](#)

DVD+R DL :Max.4X Zone CLV DVD+RW :Max.8X Zone CLV DVD-RAM :3-5X ZCLV (4.7GB) Burst Transfer PIO mode4/Multi word mode2/Ultra DMA mode2 mode CD-ROM 150ms (Typ.) Access time (ms) (Random) DVD-ROM 180ms (Typ.) Buffer memory Qosmio X500 Maintenance Manual (960-Q08)

[Page 31: Table 1-4-5 Tsst Dvd Super Multi Drive Specifications](#)

Chapter 1 Hardware Overview Table 1- TSST DVD Super Multi drive specifications Qosmio X500 Maintenance Manual (960-Q08)

[Page 32: Keyboard](#)

Figure 1-5-1 is a view of the keyboard for US style Figure 1-5-1 Keyboard for US style Figure 1-5-2 is a view of the keyboard for UK style Figure 1-5-2 Keyboard for UK style See Appendix E for details of the keyboard layout Qosmio X500 Maintenance Manual (960-Q08)

[Page 33: Tft Color Display](#)

Chapter 1 Hardware Overview 1.6 TFT Color Display The Qosmio X500 Ganel use CCFL to control backlight. 1.6.1 LCD Module with CCFL Backlight Figure 1-6-1 shows a view of the LCD module and Table 1-6-2 lists the specifications. Figure 1-6-1 SAMSUNG LCD Module...

[Page 34: Table 1-6-2 Lcd Module Specifications](#)

Table 1-6-2 LCD module specifications Specifications(WXGA+) Samsung Samsung Item LTN184KT02-T01 LTN184HT04-T01 Number of Pixel 1680 x 945 1920 x 1080 Dot spacing (mm) 0.243 (H) x 0.243 (V) 0.213 (H) x 0.213 (V) Display Colors 262,144 colors 262,144 colors Qosmio X500 Maintenance Manual (960-Q08)

[Page 35: Ccfl Inverter Board](#)

Table 1-6-3 FL inverter board specifications Specifications Item SUMIDA Ampower TWS-449-341 T18I107.00 TBD573NR Voltage (V) 8~21 8~21 8~21 Input Power (W) 7.5W 7.5W 7.5W Voltage (Vrms) 612~945 612~945 612~945 Output Current 2.3±0.4 ~ 6.5±0.3 (f=55KHz)(mArms) Qosmio X500 Maintenance Manual (960-Q08)

[Page 36: Table 1-7-1 Power Supply Output Rating](#)

Power OFF Power OFF Voltage [V] No Main Battery (with RTC Battery) Suspend mode Boot mode +5VPCU +3VPCU +3V S5 +3VSUS +1.8VSUS +SMDDR_VTERM +SMDDR_VREF +1.8V +1.5V 1.25 +1.2V 1.05 +1.05v 1.0~1.2 +NB_CORE 0.7~1.2 VCC_CORE 3.266 +VCCRTC Qosmio X500 Maintenance Manual (960-Q08)

[Page 37: Batteries](#)

Real time clock (RTC) battery Table 1-8-1 lists the specifications for these two batteries. Table 1-8-1 Battery specifications 1.8.1 Main Battery The main battery is the primary power supply for the computer when the AC adapter is not connected. Qosmio X500 Maintenance Manual (960-Q08)

[Page 38: Battery Charging Control](#)

2. The main battery is removed 3. Main battery or AC adapter voltage is abnormal 4. Charging current is abnormal Data retaining time When turning off the power in being charged fully, the retaining time is as following Table 1-8-3. Qosmio X500 Maintenance Manual (960-Q08)

[Page 39: Table 1-8-3 Data Retaining Time](#)

Chapter 1 Hardware Overview Table 1-8-3 Data retaining time If USB Seep and Charge function is enabled, the computer's battery will discharge during hibernation or when the computer is turned off. Qosmio X500 Maintenance Manual (960-Q08)

[Page 40: Rtc Battery](#)

The RTC battery provides the power supply to maintain the date, time, and other system information in memory. Table 1-8-4 lists the Time required for charges of RTC battery and data preservation time. Table 1-8-4 Time required for charges of RTC battery Qosmio X500 Maintenance Manual (960-Q08)

[Page 41: Ac Adapter](#)

Chapter 1 Hardware Overview 1.9 AC Adapter Table 1-9-1 lists the AC adapter specifications. Table 1-9-1 AC adapter specifications Qosmio X500 Maintenance Manual (960-Q08)

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[Page 45: Power Supply](#)

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After replacing the LCD, update with the latest EC/KBC. The implement for the Diagnostics procedures is referred to Chapter 3. Also, following implements are necessary: 1. Phillips screwdrivers (For replacement procedures) 2. Implements for debugging port check □ Toshiba Free-DOS system FD Qosmio X500 Maintenance Manual (960-Q08)

[Page 46](#) There are following two types of connections in the figure of board and module connection in and after 2.3 Power Supply Troubleshooting. (1) Cable connection is described in the figure as line. (2) Pin connection is described in the figure as arrow. <e.g.> Connection of modem Qosmio X500 Maintenance Manual (960-Q08)

[Page 47: Troubleshooting Flowchart](#)

Before going through the flowchart steps, verify the following: □ Ask customer to enter the password if a password is registered. □ Verify with the customer that Toshiba Windows is installed on the hard disk. Non- Windows operating systems can cause the computer to malfunction.

[Page 48](#) 2 Troubleshooting Procedures Figure 2-1-1 Troubleshooting flowchart (1/2) Qosmio X500 Maintenance Manual (960-Q08)

[Page 49](#) 2 Troubleshooting Procedures Figure 2-1-2 Troubleshooting flowchart (2/2) If the diagnostics program cannot detect an error, the problem may be intermittent. The Test program should be executed several times to isolate the problem. Check the Log Utilities Qosmio X500 Maintenance Manual (960-Q08)

[Page 50](#) 12. If an error is detected on the fingerprint test, perform the fingerprint Troubleshooting Procedures in Section 2.15. 13. If an error is detected on the Bluetooth test, perform the Bluetooth Troubleshooting Procedures in Section 2.16. Qosmio X500 Maintenance Manual (960-Q08)

[Page 51: Power Supply Troubleshooting](#)

The battery level is low while the system power is ON. (even intervals) Blinks orange once The system is driven by only a battery and the battery level (at being switched on) is low. Doesn't light Any condition other than those above. Qosmio X500 Maintenance Manual (960-Q08)

[Page 52](#) Check 2 If the DC IN icon does not light, go to Procedure 3. Check 3 If the battery icon does not light orange or green, go to Procedure 4. NOTE: Use a supplied AC adapter. Qosmio X500 Maintenance Manual (960-Q08)

[Page 53: Procedure 2 Connection Check](#)

AC adapter. If the battery pack is still not charged, go to Check 4. Check 4 The battery's temperature is too high or low. Leave the battery for a while to Qosmio X500 Maintenance Manual (960-Q08)

[Page 54](#) If the battery pack is still not charged, go to Check 5. Check 5 Replace the battery

pack with a new one. If the battery pack is still not charged, go to Procedure 4. Qosmio X500 Maintenance Manual (960-Q08)

[Page 55: Procedure 4 Replacement Check](#)

(When driving with battery pack) Check 1 Battery pack may be faulty. Replace it with a new one. If the problem still occurs, perform Check 2. Check 2 System board may be faulty. Replace it with a new one. Qosmio X500 Maintenance Manual (960-Q08)

[Page 56: System Board Troubleshooting](#)

This section describes how to determine if the system board is malfunctioning or not. Start with Procedure 1 and continue with the other procedures as instructed. The procedures described in this section are: Procedure 1: Message Check Procedure 2: Diagnostic Test Program Execution Check Procedure 3: Replacement Check Qosmio X500 Maintenance Manual (960-Q08)

[Page 57: Procedure 1 Message Check](#)

If you press the F2 key as the message instructs, the SETUP screen appears to set the system configuration. If error message (b) appears often when the power is turned on, replace the RTC battery. Qosmio X500 Maintenance Manual (960-Q08)

[Page 58: Procedure 3 Replacement Check](#)

If an error is detected during these tests, go to Procedure 3. Procedure 3 Replacement Check System board may be faulty. Disassemble the computer following the steps described in Chapter 4, Replacement Procedures and replace system board with a new one. Qosmio X500 Maintenance Manual (960-Q08)

[Page 59: Usb Fdd Troubleshooting](#)

Procedure 2. Detailed operation is given in Chapter 3, Tests and Diagnostics. If the test program cannot be executed on the computer, go to Procedure 3. Qosmio X500 Maintenance Manual (960-Q08)

[Page 60](#) "write enable". If any other message appears, perform Check 2. Write protected Check 2 Make sure the floppy disk is formatted correctly. If it is, go to Procedure 3. Qosmio X500 Maintenance Manual (960-Q08)

[Page 61: Procedure 3 Connector Check And Replacement Check](#)

NOTE: When checking the connection, be sure to check it with care for the followings. 1. Cable can not be disconnected from the connector. 2. Cable is connected straight to the connector. 3. Cable is connected all the way seated in the connector. 4. Cable can not be broken. Qosmio X500 Maintenance Manual (960-Q08)

[Page 62](#) Connect USB FDD to each port embedded on system board. If it does not work properly, perform Check 4. Check 4 System board may be faulty. Replace it with a new one following the steps in Chapter 4, Replacement Procedures. Qosmio X500 Maintenance Manual (960-Q08)

[Page 63: Hdd Troubleshooting](#)

For the backup, refer to the User's Manual. Procedure 1 Partition Check Insert the Toshiba Free-DOS system disk and start the computer. Perform the following checks: Input C: and press Enter. If you cannot change to drive C, go to Check 2. If you Check 1 can change to drive C, go to Procedure 2.

[Page 64: Procedure 2 Message Check](#)

2.5" HDD(s) and the connector(s) of system board may be defective (Refer to the steps described in Chapter 4, Replacement Procedures for disassembling.). Insert HDD(s) to the connector(s) firmly. If it is (or they are) firmly connected, go to Procedure 3. Qosmio X500 Maintenance Manual (960-Q08)

[Page 65: Procedure 3 Format Check](#)

Using the Diagnostic Disk, format 2.5" HDD with a format option (physical format). If HDD is formatted, set the 2.5" HDD partition using Free-DOS FDISK command. If you cannot format 2.5" HDD using the Tests and Diagnostic program, go to Procedure 4. Qosmio X500

[Page 66: Procedure 4 Diagnostic Test Program Execution Check](#)

Table 2-8. If an error code is not displayed but the problem still occurs, go to Procedure 5. Table 2-5-1 2.5" Hard disk drive error code and status Qosmio X500 Maintenance Manual (960-Q08)

[Page 67](#) Chapter 4, Replacement Procedures and check the operation. If the problem still occurs, perform Check 3. Check 3 System board may be faulty. Replace it with a new one following the instructions in Chapter 4, Replacement Procedures. Qosmio X500 Maintenance Manual (960-Q08)

[Page 68: Procedure 5 Connector Check And Replacement Check](#)

Diagnostic Program. Refer to Chapter 3, Tests and Diagnostics, for more information on how to perform the test program. If an error occurs, go to Procedure 2. If an error does not occur, keyboard is functioning properly. Qosmio X500 Maintenance Manual (960-Q08)

[Page 69: Procedure 2 Connector Check And Replacement Check](#)

Keyboard may be faulty. Replace it with a new one following the instructions in Chapter 4, Replacement Procedures. If the problem still occurs, perform Check 3. Check 3 System board may be faulty. Replace it with a new one following the instructions in Chapter 4, Replacement Procedures. Qosmio X500 Maintenance Manual (960-Q08)

[Page 70: Touch Pad Troubleshooting](#)

Execute the Touch pad test in the Diagnostic Program. Refer to Chapter 3, Tests and Diagnostics, for more information on how to perform the test program. If an error occurs, go to Procedure 2. If an error does not occur, touch pad is functioning properly. Qosmio X500 Maintenance Manual (960-Q08)

[Page 71: Procedure 2 Connector Check And Replacement Check](#)

Chapter 4, Replacement Procedures. If the problem still occurs, perform Check 3. Check 3 System board may be faulty. Replace it with a new one following the instructions in Chapter 4, Replacement Procedures Qosmio X500 Maintenance Manual (960-Q08)

[Page 72: Display Troubleshooting](#)

Insert the Diagnostics disk in the USB FDD, turn on the computer and run the test. Refer to Chapter 3, Tests and Diagnostics for details. If an error is detected, go to Procedure 3. Qosmio X500 Maintenance Manual (960-Q08)

[Page 73: Procedure 3 Connector And Cable Check](#)

HV cable. Their cables may be disconnected from system board or FL inverter board. Disassemble the computer following the steps described in Chapter 4, Replacement Procedures. If the connection is loose, reconnect firmly and restart the computer. If the problem still occurs, go to Procedure Qosmio X500 Maintenance Manual (960-Q08)

[Page 74: Procedure 4 Replacement Check](#)

Chapter 4, Replacement Procedure and test the display again. If the problem still occurs, perform Check 4. Check 4 System board may be faulty. Replace it with a new one following the instructions in Chapter 4, Replacement Procedure. Qosmio X500 Maintenance Manual (960-Q08)

[Page 75: Optical Disk Drive Troubleshooting](#)

Optical disk drive may be faulty. Replace it with a new one following the steps in Chapter 4. If the problem still occurs, perform Check 3. Check 3 System board may be faulty. Replace it with new one following the instructions in Chapter 4. Qosmio X500 Maintenance Manual (960-Q08)

[Page 76: Modem Troubleshooting](#)

Disassemble the computer following the steps described in Chapter 4 and perform the following checks: Check 1 Make sure the following connections are firmly connected. If any connector is disconnected, connect it firmly and return to Procedure 1. If the problem still occurs, perform Check 2. Qosmio X500 Maintenance Manual (960-Q08)

[Page 77](#) Cable between MDC and system board may be faulty. Replace it with a new one following the instructions in Chapter 4. If the problem still occurs, perform Check 5. System board may be faulty. Replace it with a new one following the instruction in Chapter 4. Qosmio X500 Maintenance Manual (960-Q08)

[Page 78: Lan Troubleshooting](#)

LAN cable may be faulty. Replace it with a new one. If the problem still occurs, perform Check 3. Check 3 System board may be faulty. Replace it with a new one following the instruction in Chapter 4. Qosmio X500 Maintenance Manual (960-Q08)

[Page 79: Wireless Lan Troubleshooting](#)

LAN. You will need a second computer that can communicate by wireless LAN. Perform the test following the instructions described in Chapter 3. If the computer passes the test, the function is correctly working. If the computer does not pass the test, perform Procedure 2. Qosmio X500 Maintenance Manual (960-Q08)

[Page 80: Procedure 2 Antennas' Connection Check](#)

Make sure that wireless LAN antenna cables (black and white) are firmly connected to the connectors on Wireless LAN card. If wireless LAN antenna cables are not connected properly, connect them firmly and perform Procedure 1. If the problem still occurs, go to the procedure 3. Qosmio X500 Maintenance Manual (960-Q08)

[Page 81: Procedure 3 Replacement Check](#)

Wireless LAN card may be faulty. Replace it with a new one following the instructions in Chapter 4, Replacement Procedures. If the problem still occurs, perform Check 3. Check3 System board may be faulty. Replace it with a new one following the instructions in Chapter 4, Replacement Procedures. Qosmio X500 Maintenance Manual (960-Q08)

[Page 82: Sound Troubleshooting](#)

Connector Check The connection of sound system is shown in the following figure. As the connection may be defective, disassemble the PC and check each connection. If the problem still occurs, go to Procedure 2. Qosmio X500 Maintenance Manual (960-Q08)

[Page 83: Procedure 2 Replacement Check](#)

Chapter 4. If the problem still occurs, perform Check 6. Check 6 Audio board/System board may be faulty. Replace it with a new one following the instructions in Chapter 4. Qosmio X500 Maintenance Manual (960-Q08)

[Page 84: Fingerprint Troubleshooting](#)

Fingerprint may be faulty. Replace it with a new one following the steps in Chapter 4. If the problem still occurs, perform Check 4. Check 4 System board may be faulty. Replace it with a new one following the instruction in Chapter 4. Qosmio X500 Maintenance Manual (960-Q08)

[Page 85](#) Bluetooth may be faulty. Replace it with a new one following the steps in Chapter 4. If the problem still occurs, perform Check 4. Check 4 System board may be faulty. Replace it with a new one following the instruction in Chapter 4. Qosmio X500 Maintenance Manual (960-Q08)

[Page 86: Diagnostic Programs](#)

Test Program for Field. Chapter 3 Diagnostic Programs Qosmio X500 Maintenance Manual (960-Q08)

[Page 87](#) How to operate a window3-68 3.21.2 How to Stop the Test Program3-68 3.21.3 Test Status Screen3-68 3.21.4 Test Stop Display3-70 3.21.5 How to enter data3-70 Qosmio X500 Maintenance Manual (960-Q08)

[Page 88: Tests And Diagnostics Software Overview](#)

□ A formatted working disk for the floppy disk drive test (all tests) □ A CD test media (Toshiba Backup CD ROM for the CD-ROM test) The following sections detail the tests contained within

the Diagnostic Test Menu. Refer to Sections 3.18, 3.19, 3.20 and, 3.21 for detailed information on the remaining functions of the...

[Page 89: Executing The Diagnostic Test](#)

1. You test disk is match this model , ex. disk is 14" but machine is 13" . 2. The M/B EEPROM project type is math your test disk , if not , please use WDMI3.EXE to modify with right LCD size . The following screen displays: TOSHIBA Satellite(Pro) P500 Diagnostics ::Select item Version v1.10 :Escape [DIAGNOSTICS MENU] 01.DIAGNOSTIC TEST...

[Page 90](#) Test Program for Field. The following menu displays: TOSHIBA Satellite(Pro) P500 Diagnostics ::Select item Version V1.10 :Escape [DIAGNOSTICS MENU] 01. DIAGNOSTIC TEST 02. RUNNING TEST 03. DMI INFORMATION [DIAGNOSTIC TEST MENU] 04. LOG UTILITIES 05. SYSTEM CONFIGURATION 01.

[Page 91](#) Test Program for Field. 4. Select the subtest you want to execute and press Enter. The following menu displays: TOSHIBA Satellite(Pro) P500 Diagnostics : :Select item Version V1.10 :Escape [DIAGNOSTICS MENU] [SYSTEM TEST] 01. DIAGNOSTIC TEST 02.

[Page 92](#) Use the arrow keys to move the cursor to the desired option and press Enter. Table 3-1 in Section 3.3 lists the function of each test on the subtest menu. Table 3-2 in Section 3.15 lists the error codes and error status for each error. Qosmio X500 Maintenance Manual (960-Q08)

[Page 93: Subtest Names](#)

Character Set 80* 25 Character Display 320* 200 Graphics Display 640* 200 Graphics Display 640* 480 Graphics Display Display Page "H" Pattern Display Video DAC Register W/R/C Color Graphics Display Color Attributes Display Color Tiling Qosmio X500 Maintenance Manual (960-Q08)

[Page 94](#) *Write Disturb Test Checker Board Test Marching Test Working Data Test HIGH RESOLUTION VRAM W/R/C Test DISPLAY TEST 640* 480 Mode Display 800* 600 Mode Display 1024* 768 Mode Display "H" Pattern Display Focus Test ("E" Pattern) Qosmio X500 Maintenance Manual (960-Q08)

[Page 95](#) Sequential Read Test Random Read Test Read Specified Address Test 1 point W/R/C Test MEMORY2 All one/zero Test Walking 1/Walking 0 Test(Left) Walking 1/Walking 0 Test(Right) Walking 1/Walking 0 Test(Left /Right) *This test cannot support. Qosmio X500 Maintenance Manual (960-Q08)

[Page 96: System Test](#)

: 4000 mAh Device chemistry : LION design voltage : 11100 mV Manufacturer data specification information : 2.1 Manufacture date : 9/13/2005 serial no. : 32009 STATUS : INIT Press [ESC] KEY to exit Qosmio X500 Maintenance Manual (960-Q08)

[Page 97](#) This program judges by sampling five kinds of data shown below. No Item Contents Access An access platform is leveling. platform. Test Fixture The Fixture which fixes PC by 90 degree inclination is used. Vibration/shock doesn't take a PCB at the time of T&D inspection. Qosmio X500 Maintenance Manual (960-Q08)

[Page 98](#) The display of a test program and the set method of PC are shown below. Display of a Test Program The portion which PC and Test-Fixture contact is green. Set method of PC Upper Judgment If all data is less than ranges, it will be OK. Qosmio X500 Maintenance Manual (960-Q08)

[Page 99](#) The display of a test program and the set method of PC are shown below. Display of a Test Program Set method of PC Rear Uppe Judgment If all data is less than ranges, it will be OK. Qosmio X500 Maintenance Manual (960-Q08)

[Page 100](#) The display of a test program and the set method of PC are shown below. Display of a Test Program Set method of PC Right Uppe Judgment If all data is less than ranges, it will be OK. Qosmio X500 Maintenance Manual (960-Q08)

[Page 101](#) The display of a test program and the set method of PC are shown below. Display

selected for Test Loop on the Test Parameter Menu. Press Ctrl + break if YES was selected for Test Loop on the Test Parameter Menu. Qosmio X500 Maintenance Manual (960-Q08)

[Page 115](#) To exit this subtest and return to the Display Test menu: Press Enter if NO was selected for Test Loop on the Test Parameter Menu. Press Ctrl + break if YES was selected for Test Loop on the Test Parameter Menu. Qosmio X500 Maintenance Manual (960-Q08)

[Page 116](#) Press ENTER to display the following 16 colors: black, blue, green, cyan, red, magenta, brown, white, dark gray, light blue, light green, light cyan, light red, light magenta, yellow, and intensified white using 640*480 video resolution. Qosmio X500 Maintenance Manual (960-Q08)

[Page 117](#) To exit this subtest and return to the Display Test menu: Press Enter if NO was selected for Test Loop on the Test Parameter Menu. Press Ctrl + break if YES was selected for Test Loop on the Test Parameter Menu. Qosmio X500 Maintenance Manual (960-Q08)

[Page 118](#) To exit this subtest and return to the Display Test menu: Press Enter if NO was selected for Test Loop on the Test Parameter Menu. Press Ctrl + break if YES was selected for Test Loop on the Test Parameter Menu. Qosmio X500 Maintenance Manual (960-Q08)

[Page 119](#) " displays on the screen and then the screen flickers due will remain blank to the fast screen refresh while the test is executing. Press Ctrl + break to return to the Display Test menu. Qosmio X500 Maintenance Manual (960-Q08)

[Page 120](#) To exit this subtest and return to the Display Test menu: Press Enter if NO was selected for Test Loop on the Test Parameter Menu. Press Ctrl + break if YES was selected for Test Loop on the Test Parameter Menu. Qosmio X500 Maintenance Manual (960-Q08)

[Page 121](#) 640*480 COLOR ATTRIBUTE DISPLAY Press [Enter] Key Pressing Enter executes VRAM mapping test which indicates vertical lines Press Enter to execute the VRAM mapping test which displays a horizontal line at one dot intervals using Mode 12. Qosmio X500 Maintenance Manual (960-Q08)

[Page 122](#) Press Enter to execute the VRAM mapping test which displays a vertical line at four dot intervals using Mode 12. Press [Enter] Key Press Enter to display VRAM mapping test using the all dots Mode. Qosmio X500 Maintenance Manual (960-Q08)

[Page 123](#) To exit this subtest and return to the Display Test menu: Press Enter if NO was selected for Test Loop on the Test Parameter Menu. Press Ctrl + break if YES was selected for Test Loop on the Test Parameter Menu. Qosmio X500 Maintenance Manual (960-Q08)

[Page 124](#) To exit this subtest and return to the Display Test menu: Press Enter if NO was selected for Test Loop on the Test Parameter Menu. Press Ctrl + break if YES was selected for Test Loop on the Test Parameter Menu. Qosmio X500 Maintenance Manual (960-Q08)

[Page 125: Floppy Disk Test](#)

Subtest 03 Random Address/Data This subtest writes random data to random addresses on all tracks defined in Subtest 01. The data is then read and compared to the original data. Qosmio X500 Maintenance Manual (960-Q08)

[Page 126](#) Read Specified Address This subtest reads data from a specified track and head. The following message displays on the screen to enter the test track number and head number. TRACK NO (00~79) ?? HEAD NO (0~1) ? Qosmio X500 Maintenance Manual (960-Q08)

[Page 127: Hard Disk Test](#)

Forward sequential Reverse sequential Random Subtest 03 Random Address Data This subtest writes random data to 1000 different random addresses on the HDD. This data is then read and compared to the original data. Qosmio X500 Maintenance Manual (960-Q08)

[Page 128](#) 3.18) to specify the LBA number where the error(s) occurred during Subtest 01. The following message displays on the screen to enter the test sector count. SECTOR COUNT (01~39) ?? START ADDRESS (00000000~MAX Address) ? Qosmio X500 Maintenance Manual

(960-Q08)

[Page 129](#) This subtest writes specified data to a specified sector count, then reads and compares the result. The following message displays on the screen to enter the test data, sector count. TEST DATA ???? (=37b3H) SECTOR COUNT (01~39) ?? START ADDRESS (00000000~Max Address) ? Qosmio X500 Maintenance Manual (960-Q08)

[Page 130: Real Time Clock Test](#)

If YES is selected for Test Loop on the Test Parameter menu, the screen above displays and the test is executed again. Press Ctrl + break to return to the Real Time Clock Test menu. Qosmio X500 Maintenance Manual (960-Q08)

[Page 131](#) To exit this subtest and return to the Real Time Clock menu: Press Enter if NO was selected for Test Loop on the Test Parameter Menu. Press Ctrl + break if YES was selected for Test Loop on the Test Parameter Menu. Qosmio X500 Maintenance Manual (960-Q08)

[Page 132: Cache Memory Test](#)

(FFH, FEH, FEH, through 02H, 01H, 00H) is written and the new data is read and compared with the original data. The original cache memory content is then restored to the cache memory. Qosmio X500 Maintenance Manual (960-Q08)

[Page 133](#) This subtest reads the contents of cache memory and saves it into RAM. The subtest then writes the "working data," reads the new data and compares the result with the original data. The original cache memory content is then restored to the cache memory. Qosmio X500 Maintenance Manual (960-Q08)

[Page 134: High Resolution Display Test](#)

Display Test menu displays. If YES is selected for Test Loop on the Test Parameter menu, the screen displays the colors listed above. Press Ctrl + break to return to the High Resolution Display Test menu. Qosmio X500 Maintenance Manual (960-Q08)

[Page 135](#) To exit this subtest and return to the High Resolution Display Test menu: Press Enter if NO was selected for Test Loop on the Test Parameter Menu. Press Ctrl + break if YES was selected for Test Loop on the Test Parameter Menu. Qosmio X500 Maintenance Manual (960-Q08)

[Page 136](#) To exit this subtest and return to the High Resolution Display Test menu: Press Enter if NO was selected for Test Loop on the Test Parameter Menu. Press Ctrl + break if YES was selected for Test Loop on the Test Parameter Menu. Qosmio X500 Maintenance Manual (960-Q08)

[Page 137](#) To exit this subtest and return to the High Resolution Display Test menu: Press Enter if NO was selected for Test Loop on the Test Parameter Menu. Press Ctrl + break if YES was selected for Test Loop on the Test Parameter Menu. Qosmio X500 Maintenance Manual (960-Q08)

[Page 138](#) To exit this subtest and return to the High Resolution Display Test menu: Press Enter if NO was selected for Test Loop on the Test Parameter Menu. Press Ctrl + break if YES was selected for Test Loop on the Test Parameter Menu. Qosmio X500 Maintenance Manual (960-Q08)

[Page 139](#) To exit this subtest and return to the High Resolution Display Test menu: Press Enter if NO was selected for Test Loop on the Test Parameter Menu. Press Ctrl + break if YES was selected for Test Loop on the Test Parameter Menu. Qosmio X500 Maintenance Manual (960-Q08)

[Page 140: Multimedia Test](#)

Move the highlight bar to the subtest you want to execute and press Enter. NOTE: Use the Toshiba Backup CD-ROM for Subtests 01, 02, and 03. Because CDROM driver issue, the Multimedia function can't test, this is limitation.

[Page 141: Memory2 Test](#)

Subtest 03 Walking 1/Walking 0 test (Right) Tee test method is the same as Subtest2. However, the data to be used differs. 80008000800080007FFF7FFF7FFF7FFF
4000400040004000BFFF BFFF BFFF BFFF Subtest 04 Walking 1/Walking 0 test (Left/ Right)
Qosmio X500 Maintenance Manual (960-Q08)

[Page 142](#) Test Program for Field. Tee test method is the same as Subtest2. However, the data to be used differs. 7FFF7FFF7FFF7FFF8000800080008000
BFFF BFFF BFFF BFFF 4000400040004000 DFFDFFF DFFDFFF DFFDFFF 2000200020002000
FFFBFFF BFFF BFFF B0004000400040004 FFFDFFF DFFDFFF D0002000200020002
FFFEFFFEFFFEFFFE0001000100010001 80008000800080007FFF7FFF7FFF7FFF
4000400040004000BFFF BFFF BFFF BFFF 0004000400040004FFFBFFF BFFF BFFF B
0002000200020002FFFDFFF DFFF DFFF D 0001000100010001FFFEFFFEFFFEFFFE Qosmio X500
Maintenance Manual (960-Q08)

[Page 143: Error Codes And Error Status Names](#)

Bad Address Mark Error Record Not Found HDC Not Reset Error Drive Not Initialized DMA
Boundary Error Bad Sector Bad Track Error ECC Error ECC Recover Enabled HDC Error Seek
Error Time Out Error Drive Not Ready Qosmio X500 Maintenance Manual (960-Q08)

[Page 144](#) Cache Memory Protect Mode Error Caching Error Other Error Multimedia Write
Error Invalid Drive Drive Not Ready Other Error NOTE: If error status name is Other Error ,
please reference the Error Code for error information Qosmio X500 Maintenance Manual (960-
Q08)

[Page 145: Running Test](#)

6. All errors which occur during execution of the Running Test are logged in the Log File. 7. This
program is executed according to the Count Loop number selected in the Running Test Edit
Item, see Section 3.20. To terminate the program, press Ctrl + Break. Qosmio X500
Maintenance Manual (960-Q08)

[Page 146: Dmi Infoemation](#)

2. Region Code 3.17.2 Write DMI Information The Write DMI Information program contains the
following information for the computer : 1. Manufacture Name (TOSHIBA) 2. Product Name (
Satellite XXXXXX) 3. Part Number (PSP50X-XXXXXX) 4. Serial Number (12345678W) 5.

[Page 147](#) Note : Please Check New DMI Information After System Restart !! V3.2 1. ****
Manufacture Name (TOSHIBA) - (32) 2. **** Product Name (Satellite XXXXXX) - (32) 3. ****
Part Number (PSP50X-XXXXXX) - (26) 4.

[Page 148: Log Utilities](#)

0000001 TIME OUT ERROR Address Error Status Pass Count Subtest Number Read Data Test
Name Write Data Error Count Error Name and Detail [[1:Next, 2:Prev, 3:Exit, 4:Clear, 5:FD Log
Read, 6:FD Log Write, 7:Log Save]] Qosmio X500 Maintenance Manual (960-Q08)

[Page 149](#) The following are the test abbreviations for each Diagnostics Test. Test Name Test
Abbreviations System Test Memory Test Keyboard Test Display Test Floppy Disk Test Hard Disk
Test Real Time Clock Test Cache Memory Test Height Resolution Display Test Multimedia Test
Memory2 Test Qosmio X500 Maintenance Manual (960-Q08)

[Page 150: System Configuration](#)

ORG LBA:XXXXXXXX * - BATTERY TYPE:XXXXXXXXXX * - XXXMB MEMORY SIZE * - XXX CPU * - 1
Vedio Chip XXXXXXXXXXXXX * - 1 ODD DRIVE(S):XXXXXXXX FW Rev.:XXXX Press Enter to return
to the Diagnostics Menu. Qosmio X500 Maintenance Manual (960-Q08)

[Page 151: Running Test Edit Item](#)

640 * 480 Graphics Display Display Test Subtest 08 Display Page Floppy Disk Test Subtest 02
Sequential W/R/C Hard Disk Test Subtest 01 Sequential Read Real Time Clock Test Subtest 02
Backup Memory Test Tab: HELP (Key Operation) Qosmio X500 Maintenance Manual (960-Q08)

[Page 152](#) 7. Select the option and press Enter. 8. Select 03 from the Diagnostics Menu and
press Enter to execute the Running Test. NOTE: If press Ctrl+break in the runin process, please

press more one any key to exit. Qosmio X500 Maintenance Manual (960-Q08)

[Page 153: Common Tests And Operation](#)

Displays the name of the test being executed. Subtest No. Displays the Subtest number in the following format: ffgg ff = Subtest No. gg = Step Number (Will be blank if the test does not have a Step Number.) Qosmio X500 Maintenance Manual (960-Q08)

[Page 154](#) Displays test data that has failed to compare during the test while being read during the test. Test Address Displays the Test Address. (The format differs for each test.) Error Status Displays the error status. Error Name Displays the name of the error. Qosmio X500 Maintenance Manual (960-Q08)

[Page 155: Test Stop Display](#)

Letters which must be entered are always shown in []. Simultaneous entries are displayed by a "+" mark. For example: [a] [Enter] Press the "a" key, then press the [Enter] key. [Ctrl] + [c] Press the [Ctrl] key and the "c" key simultaneously. Qosmio X500 Maintenance Manual (960-Q08)

[Page 156: Replacement Procedures](#)

Replacement Procedures Chapter 4 Replacement Procedures Qosmio X500 Maintenance Manual (960-Q08)

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[Page 159](#) Removing the securing screws at right side.....4-65 Figure 4-22-3 Removing the Speaker Box4-65 Figure 4-23-1 Intel &AMD Thermal pad on North Bridge.....4-67 Figure 4-23-2 Apply silicon grease on North Bridge4-68 Figure 4-22-3 Thermal pad position.....4-68 Qosmio X500 Maintenance Manual (960-Q08) 4-iv...

[Page 160: Overview](#)

FRU that is the potential cause of a computer fault, use the chart to determine the order in which FRUs need to be removed. The tilt stand, if it is installed, can be removed without any other FRUs removed. Qosmio X500 Maintenance Manual (960-Q08)

[Page 161: Safety Precautions](#)

DANGER: 1. In the case of the battery, always use authentic parts or equivalent parts approved by Toshiba. Other batteries may have different specifications that are incompatible with the computer and may result in fire or explosion.

[Page 162: Before You Begin](#)

Screw sizes are noted in the text and figures. 9. As all parts have sharp edges and corners, take care not to cut yourself. 10. After replacing an FRU, check that the computer and replaced part operate correctly. Qosmio X500 Maintenance Manual (960-Q08)

[Page 163: Disassembly Procedure](#)

Normal pin connectors are used for all other cables. Simply pull out or push in these connectors to disconnect or reconnect. Pressure plate connector Spring connector Qosmio X500 Maintenance Manual (960-Q08)

[Page 164: Assembly Procedure](#)

One Philips screwdriver with type 1 bit (for screws other than above) □ Tweezers (for lifting screws) □ ESD mats (lay on work table or floor) □ An ESD wrist strap and heel grounder □ Anti-static carpet or flooring Qosmio X500 Maintenance Manual (960-Q08)

[Page 165: Screw Tightening Torque](#)

Special length screw: Blue Grip a r e a “Special length screw” means screws whose length is indicated in an integral number to the first decimal places such as 2.5 mm, 2.8 mm and so on. Qosmio X500 Maintenance Manual (960-Q08)

[Page 166: Screw Notation](#)

Screw shape + Screw length (mm) Screw shape B: Bind screw F: Thin head screw S: Super thin head screw T: Tapping screw U: Other screws (Unique screws: pan head, stud, etc.) Example: B6 ... 6mm bind screw Qosmio X500 Maintenance Manual (960-Q08)

[Page 167: Battery Pack](#)

4. Slide and hold the battery release latch (2) to free the battery pack after moving the battery release latch (1) into it unlock position – pick the battery pack out of the computer from fillister. Figure 4-2-1 Remove the battery pack Qosmio X500 Maintenance Manual (960-Q08)

[Page 168: Installing The Battery Pack](#)

Dispose always the used battery pack in accordance with the laws and ordinances of your local authority. Use only the batteries approved by Toshiba. NOTE: Check visually the battery terminals and clean off any dirt with a dry cloth.

[Page 169: Pc Card](#)

PC card firmly and press the eject button again. Figure 4-3-1 Remove a PC card Installing a PC card The following describes the procedure for inserting a PC card (See Figure 4-3-2). Qosmio X500 Maintenance Manual (960-Q08) 4-10...

[Page 170](#) Replacement Procedures 1. Make sure the PC card does not stick out. 2. Insert a PC card and press it until it is securely connected. Figure 4-3-2 Insert a PC card Qosmio X500 Maintenance Manual (960-Q08) 4-11...

[Page 171: Ssd/Hdd\(Main Hdd\)](#)

FLAT BIND screw 3. Remove the following screws securing the SSD/HDD assembly. □ M2.5□3.0B FLAT BIND screw 4. Disconnect the SSD/HDD assembly from the connector on the system board. Turn Figure 4-4-1 the computer upside down Qosmio X500 Maintenance Manual (960-Q08) 4-12...

[Page 172](#) Replacement Procedures CAUTION: When a SSD/HDD is installed, they are installed in the position as the following figure. Figure 4-4-2 Remove the SSD/MAIN HDD assembly Qosmio X500 Maintenance Manual (960-Q08) 4-13...

[Page 173](#) Replacement Procedures 5. Remove the following screws securing the SSD/HDD holder and remove the SSD/ HDD holder. □ M3.0□3.0B FLAT BIND screw Figure 4-4-3 Remove SSD/MAIN HDD Qosmio X500 Maintenance Manual (960-Q08) 4-14...

[Page 174](#) 2. Insert the SSD/HDD assembly into the SSD/HDD slot and connect it carefully to the SSD/MAIN HDD on the system board. 3. Secure the SSD/HDD assembly with the following screw. □ M2.5□3.0B FLAT BIND screw □ M2.5□4.0B FLAT BIND screw Qosmio X500 Maintenance Manual (960-Q08) 4-15...

[Page 175: Optical Disk Drive](#)

1. Remove MAIN HDD Slot cover and next remove the following screws securing an optical disk drive. □ M2.5□3.0B FLAT BIND screw 2. Disconnect an optical disk drive toward the arrow direction from the connector CN26 on the system board. Figure 4-5-1 Remove an optical disk drive Qosmio X500 Maintenance Manual (960-Q08) 4-16...

[Page 176](#) 2. Insert an optical disk drive assembly into the slot and connect it to the

connector CN26 on the system board. 3. Secure the ODD drive with the following screw. □ M2.5X5.0 Flat BIND screw Qosmio X500 Maintenance Manual (960-Q08) 4-17...

[Page 177: Slot In Optical Disk Drive](#)

2. Remove the Motherboard and thermal fan. 3. Remove the screws to disconnect the slot in ODD □ M2.0□3.0B FLAT BIND screw 4. Remove the slot in ODD bracket from right side and left side. □ M2.0□2.0B FLAT BIND screw Qosmio X500 Maintenance Manual (960-Q08) 4-18...

[Page 178](#) Replacement Procedures Figure 4-6-1 Remove an optical disk drive Figure 4-6-2 Disconnect the Slot in ODD from Motherboard Qosmio X500 Maintenance Manual (960-Q08) 4-19...

[Page 179](#) 2. Insert an optical disk drive assembly into the slot and connect it to the connector CN26 on the system board and secure it with the following screws. □ M2.0□3.0B FLAT BIND screw 3. Secure Motherboard with following screws. □ M2.5□6.5B FLAT BIND screw Qosmio X500 Maintenance Manual (960-Q08) 4-20...

[Page 180: Hdd\(Second Hdd\)](#)

FLAT BIND screw 3. Remove the following screws securing the HDD assembly. □ M2.5□3.0B FLAT BIND screw 4. Disconnect the HDD assembly from the connector on the system board. Figure 4-7-1 Turn the computer upside down Qosmio X500 Maintenance Manual (960-Q08) 4-21...

[Page 181](#) Replacement Procedures CAUTION: When a HDD is installed, they are installed in the position as the following figure. Figure 4-7-2 Remove the SECOND HDD assembly Qosmio X500 Maintenance Manual (960-Q08) 4-22...

[Page 182](#) Replacement Procedures 5. Remove the following screws securing the HDD holder and remove the HDD holder. □ M3.0□3.0B FLAT BIND screw Figure 4-7-3 Remove the screws and HDD holder Qosmio X500 Maintenance Manual (960-Q08) 4-23...

[Page 183](#) 2. Insert the HDD assembly into the HDD slot and connect it carefully to the MAIN HDD on the system board. 3. Secure the HDD assembly with the following screw. □ M2.5□3.0B FLAT BIND screw □ M2.5□4.0B FLAT BIND screw Qosmio X500 Maintenance Manual (960-Q08) 4-24...

[Page 184: Memory Module](#)

(See Figure 4-8-1 to 4-8-2). 1. Loose the screw securing the memory slot cover. □ M2.5□4.0B FLAT BIND screw 2. Remove the memory slot cover. 3. Open the left and right latches and remove a memory module. Qosmio X500 Maintenance Manual (960-Q08) 4-25...

[Page 185](#) Replacement Procedures Figure 4-8-1 Remove memory slot cover Figure 4-8-2 Remove a memory module Qosmio X500 Maintenance Manual (960-Q08) 4-26...

[Page 186: Installing A Memory Module](#)

3. When the power of the computer is turned on, the computer checks automatically the memory size. Confirm that the new memory is detected correctly. 4. If the memory is not detected, check that it is connected correctly. Socket1 Socket2 Figure 4-8-3 Insert a memory module Qosmio X500 Maintenance Manual (960-Q08) 4-27...

[Page 187: Keyboard](#)

Then, lift up the keyboard cover to remove it. 4. Loose the screw securing KBD Holder. M2.5x3.0B Flat BIND screws 5. Insert your finger into the keyboard slot and keyboard. Then lift up the keyboard to remove it. 6. Disconnect keyboard cable. Qosmio X500 Maintenance Manual (960-Q08) 4-28...

[Page 188](#) Replacement Procedures Figure 4-9-1 Remove screws for KB Holder Qosmio X500 Maintenance Manual (960-Q08) 4-29...

[Page 189: Installing The Keyboard](#)

Connect the keyboard flexible cable to the connector on the system board. 2. Slide and set the speaker cover assembly and secure it with the following screw. □ M2.5□3.0B FLAT BIND screw 3.

Install the keyboard brace by pressing it from the topside. Qosmio X500 Maintenance Manual (960-Q08) 4-30...

[Page 190: Wireless Lan Card](#)

2. Disconnect the wireless LAN antenna cable from the connectors on a wireless LAN card 3. Open the left and right latches holding a wireless LAN card and remove a wireless LAN card from the connector on the system board. Figure 4-10-1 Wireless LAN card Qosmio X500 Maintenance Manual (960-Q08) 4-31...

[Page 191](#) Replacement Procedures Figure 4-10-2 Remove a wireless LAN card Qosmio X500 Maintenance Manual (960-Q08) 4-32...

[Page 192](#) USB cable locate bottom and FM cable locate middle).Stick the tape of cable on the surface. If fail to stick, replace tape with new adhesive tape.(see Figure 4-10-3) Figure 4-10-3 Cables layout on motherboard Qosmio X500 Maintenance Manual (960-Q08) 4-33...

[Page 193: Bluetooth Module](#)

2. Connect the Bluetooth cable to the terminals on a Bluetooth and connect it to the motherboard side. 3. Install the Bluetooth bracket and secure it with following screw. □ 2.5.0 x 3.0B BIND screw Qosmio X500 Maintenance Manual (960-Q08) 4-34...

[Page 194: Tv Tuner Card](#)

2. Disconnect the TV antenna cable from the connectors on a TV tuner card 3. Open the left and right latches holding a TV tuner card and remove a TV tuner card from the connector on the system board. Figure 4-12-1 TV Tuner card Qosmio X500 Maintenance Manual (960-Q08) 4-35...

[Page 195](#) 2. Connect the TV antenna cable to the terminals on a TV tuner card. 3. Put the TV antenna cable on the right location from the guide(see Figure 4-10-3) 4. Secure TV tuner card with the following screws 2.5.0 x 3.0B BIND screw Qosmio X500 Maintenance Manual (960-Q08) 4-36...

[Page 196: Display Assembly](#)

Drive Disk. □ M2.5□4.0 FLAT BIND screw □ M2.5□3.0 FLAT BIND screw Figure 4-13-1 Remove the screws (securing display assembly) 4. Open the SECOND HDD Door. 5. Remove the screws from the bottom side. 4-37 Qosmio X500 Maintenance Manual (960-Q08)

[Page 197](#) 6. Disassemble KBD Holder and Keyboard screw (See Figure 4-9-1) □ M2.5x3.0 Flat BIND screws 7. Remove the screws from the top side and remove the cover. □ M2.5x6.5 Flat BIND screws □ M2.5x3.0 Flat BIND screws 4-38 Qosmio X500 Maintenance Manual (960-Q08)

[Page 198](#) Figure 4-13-3 Remove the screws (from top side) 8. Disconnect the FFC and cables. 9. Disassembly TOP cover. 10. Pull out the wireless LAN antenna and LCD cables from the guide. Figure 4-13-4 Remove the Wireless Antenna and LCD cable 4-39 Qosmio X500 Maintenance Manual (960-Q08)

[Page 199](#) □ M2.5□6.5 FLAT BIND screw (Locktight) NOTE: Be sure to apply the locktight to the screws instructed in the figure above. 3. Connect the LCD harness to the connector on the system board. 4-40 Qosmio X500 Maintenance Manual (960-Q08)

[Page 200](#) 10. Install battery pack, HDD door and Optical Drive Disk with screws □ M2.5□4.0 FLAT BIND screw □ M2.5□3.0 FLAT BIND screw NOTE: If Fingerprint or Dust left on LCD screen during disassembly and assembly LCD units, please follow Appendix A to clean it. 4-41 Qosmio X500 Maintenance Manual (960-Q08)

[Page 201: Top Cover Assembly](#)

FLAT BIND screw Back □ M2.5□6.5 FLAT BIND screw Back □ M2.5□8.0 FLAT BIND screw Back □ M2.5□4.0 FLAT BIND screw Back □ M2.5□3.0 FLAT BIND screw Back Figure 4-14-1 Remove the screws (back) 4-42 Qosmio X500 Maintenance Manual (960-Q08)

[Page 202](#) Pull up and remove the top cover assembly from the base assembly. □ M2.5x6.5 Flat BIND screws Figure 4-14-2 Remove the screws (front) and top cover assembly 4. Disconnect the touch pad flat cable/Fingerprint cable from the connector on the system board.

[Page 203](#) □ M2.5□6.5 FLAT BIND screw □ M2.5□8.0 FLAT BIND screw x6 □ M2.5□4.0 FLAT BIND screw □ M2.5□3.0 FLAT BIND screw 5. Free the cable from cable-drain when through the antenna cable to PCB hole. 4-44 Qosmio X500 Maintenance Manual (960-Q08)

[Page 204: Touch Pad](#)

SUPER THIN HEAD screw 3. Remove the touch pad board and touch pad plate. 4. Peel off and remove the touch pad from the top cover assembly. Figure 4-15-1 Remove the touch FFC and Fingerprint cable 4-45 Qosmio X500 Maintenance Manual (960-Q08)

[Page 205](#) Replacement Procedures Figure 4-15-2 Loose the M2.5x3 screw Figure 4-15-3 Remove the touchpad and touchpad board 4-46 Qosmio X500 Maintenance Manual (960-Q08)

[Page 206: Installing The Touch Pad](#)

□ M2.5□3.0 SUPER THIN HEAD screw 4. Stick the insulator on the touch pad plate. 5. Connect the touch pad flat cable to the connector on the touch pad and stick the glass tape on the connector. 4-47 Qosmio X500 Maintenance Manual (960-Q08)

[Page 207: Usb Board](#)

1. Insert the USB board into base case and connect USB board cable, Modem cable 2. Fix the below screws M2.5x6.5 FLAT BIND screw NOTE: Be careful not to catch the cables between top cover assembly and base assembly. 4-48 Qosmio X500 Maintenance Manual (960-Q08)

[Page 208: B Cas Board](#)

The following describes the procedure for installing the B CAS board. 1. Insert the B CAS board into base case and connect B CAS board FFC. 2. Fix the below screws M2.5x3 FLAT BIND screw 4-49 Qosmio X500 Maintenance Manual (960-Q08)

[Page 209: System Board](#)

Removing the System Board The following describes the procedure for removing the system board (See Figure 4-18-1 to 4-18-2). 1. Disconnect the power cable from the system board. Power Cable Figure 4-18-1 Disconnect the power cable Qosmio X500 Maintenance Manual (960-Q08)

[Page 210](#) USB cable, FM CABLE, MDC CABLE, and TV-F ANTENNA from the connector on the system board. 3. Remove the following screws securing the fan and the system board and remove the system board. □ M2.5□6.5 screw □ M2.5□6.5 screw Figure 4-18-2 Remove the system board Qosmio X500 Maintenance Manual (960-Q08)

[Page 211](#) 1. Pull the away the socket of RTC battery and use a clamp to hold RTC battery tightly. Figure 4-18-3 Pull away from the socket of RTC Battery 2. Rotate battery through the way then remove it. Figure 4-18-4 Rotate the RTC Battery Qosmio X500 Maintenance Manual (960-Q08)

[Page 212](#) 4. Connect the power cable to the connector on the system board Installing RTC battery The following describes the procedure for installing the RTC battery unit (See Figure 4-18-5). 1. Press the force vertically then lock the RTC battery tightly. Figure 4-18-5 Install the RTC battery Qosmio X500 Maintenance Manual (960-Q08)

[Page 213: Cpu](#)

NOTE: When removing the heat sink holder, be sure to remove the screws in the reverse order of the number marked on the holder. 3. Remove the CPU heat sink. Figure 4-19-1 Remove the CPU heat sink Qosmio X500 Maintenance Manual (960-Q08)

[Page 214: Installing The Cpu](#)

5. Please apply 0.1cc silicon grease (Shinetsu 7762) for each repair. And apply Thermal pad for N-bridge, VGA&V-RAM for each repair NOTE: Apply the silicon grease enough to cover the chip surface using the special applicator. Thermal pad is fixed for each one, no need special applicator. Qosmio X500 Maintenance Manual (960-Q08)

[Page 215](#) 7. Connect the Heat sink cable to the connector on the system board NOTE: When securing the heat sink holder, be sure to secure the screws in the order of the number marked on the holder. Qosmio X500 Maintenance Manual (960-Q08)

[Page 216: Lcd Unit / Fl Inverter](#)

M2.5x6.5 screw X8 2. Insert your finger between the edge of the display mask and the LCD, and remove the display mask while releasing the latches of display mask. Figure 4-20-1 Remove the display mask Qosmio X500 Maintenance Manual (960-Q08)

[Page 217](#) 5. Disconnect the HV harnesses from the connectors CN2 on the inverter. 6. Remove the FL inverter while peeling off the double-sided tape. Insulator LCD harness Inverter Double-sided tape HV harness Figure 4-19-2 Remove the inverter Qosmio X500 Maintenance Manual (960-Q08)

[Page 218](#) LCD unit. After peeling off the CONDUCTIVE tape, disconnect the LCD harness from the connector on the back of the LCD. 9. Remove the LCD unit. LCD HARNESS Figure 4-20-3 Remove the LCD unit Qosmio X500 Maintenance Manual (960-Q08)

[Page 219](#) Replacement Procedures 10. Remove the following screws securing the LCD support (LCD unit side) and remove the hinge from the LCD unit. □ M2.0x2.5 screw Figure 4-20-4 Remove the LCD hinge Qosmio X500 Maintenance Manual (960-Q08)

[Page 220](#) 7. Secure the display mask with following screws M2.5x6.5 screw X8 8. Cover screws with Screw MYLAR cover X8 NOTE: When installing the display mask, make sure there is no gap between the display mask and the display cover. Qosmio X500 Maintenance Manual (960-Q08)

[Page 221](#) The following describes the procedure for removing the Web Camera module. (See Figure 4-21-1 to 4-21-2). 1. Pull off the connector of Web Camera module. Figure 4-21-1 Remove the connector of Web Camera module 2. Peel off the glue of Web Camera module. Qosmio X500 Maintenance Manual (960-Q08)

[Page 222](#) Figure 4-21-2 Peel off the glue of Web Camera module Installing Web Camera module The following describes the procedure for installing the Web Camera module. 1. Pull in the glue of Web Camera Module. 2. Connect the connector of Web Camera module. Qosmio X500 Maintenance Manual (960-Q08)

[Page 223](#) The following describes the procedure for removing Speaker Box. (See Figure 4-22-1 to 4-22-3). 1. Remove the following screws securing Speaker Box. □ M2.5x2.0 screw x 4 Figure 4-22-1 Removing the securing screws at left side. Qosmio X500 Maintenance Manual (960-Q08)

[Page 224](#) Replacement Procedures Figure 4-22-2 Removing the securing screws at right side. 2. Removing the Speaker Box. Figure 4-22-3 Removing the Speaker Box. Qosmio X500 Maintenance Manual (960-Q08)

[Page 225](#) Replacement Procedures Installing Speaker Box The following describes the procedure for installing Speaker Box. Installing the Speaker Box. Securing Speaker Box of following screws. □ M2.5x2.0 screw x 4 Qosmio X500 Maintenance Manual (960-Q08)

[Page 226](#) Figure 4-23-1 Intel &AMD Thermal pad on North Bridge RAW PN TSB PN Vendor Description JXTZ1024010 THERMAL PAD INT NB BS TZ1(JXTZ1024,3A) A000048640 XY0GFCM1000 A000018440 THERMAL GREASE GFC-M1 II. Use grease and Thermal pad on VGA 1. 0.15cc for one repair. Qosmio X500 Maintenance Manual (960-Q08)

[Page 227](#) Replacement Procedures Figure 4-23-2 Apply silicon grease for North Bridge 2. Thermal pad and grease used on VGA thermal module. Figure 4-22-3 Thermal pad position Qosmio X500 Maintenance Manual (960-Q08)

[Page 228](#) Vendor Description JXTZ1027010 A000048650 THERMAL PAD VGA V-RAM AD(JXTZ1027,3A) JXTZ1026010 A000048660 THERMAL PAD VGA CHOKE AD(JXTZ1026,3A) XY0GFCM1000 A000018440 THERMAL GREASE GFC-M1 NOTE: Thermal pad is fixed for each

one, no need special applicator and can re-use. Qosmio X500 Maintenance Manual (960-Q08)

[Page 229: Appendix A Handling The Lcd Module](#)

LCD cover before securing the module with screws. Do not force the module into place, because stress can affect its performance. Also, the panel's polarized surface is easily scarred, so be careful when handling it. A-1 Qosmio X500 Maintenance Manual Maintenance Manual (960-Q08)

[Page 230](#) 4. If water or other liquid is left on the panel's surface for a long period, it can change the screen's tint or stain it. Be sure to quickly wipe off any liquid with cloth or ionic A-2 Qosmio X500 Maintenance Manual Maintenance Manual (960-Q08)

[Page 231](#) 6. CMOS-LSI circuits are used in the module, so guard against damage from electrostatic discharge. Be sure to wear a wrist or ankle ground when handling the module. A-3 Qosmio X500 Maintenance Manual Maintenance Manual (960-Q08)

[Page 232](#) 8. Do not store the module at temperatures below specifications. Cold can cause the liquid crystals to freeze, lose their elasticity or otherwise suffer damage. 9. Do not disassemble the LCD module. Disassembly can cause malfunctions. A-4 Qosmio X500 Maintenance Manual Maintenance Manual (960-Q08)

[Page 233](#) 10. If you transport the module, do not use packing material that contains epoxy resin (amine) or silicon glue (alcohol or oxide). These materials can release gas that can damage the panel's polarization. A-5 Qosmio X500 Maintenance Manual Maintenance Manual (960-Q08)

[Page 234: Appendix B Board Layout](#)

Appendix B Appendix B Board Layout B.1 System Board Figure B-1-1 System board layout (front) Qosmio X500 Maintenance Manual (960-Q08)

[Page 235](#) Board Layout Figure B-1-2 System board layout (Back) B-2 Qosmio X500 Maintenance Manual (960-Q08)

[Page 236](#) BCAS CONN (15) CN29 Felica CONN (16) CN33 Cardreader CONN (17) CN32 New Card CONN (18) CN15 WiFi CONN (19) CN27 Bluetooth CONN (20) CN24 MMB CONN (21) CN17 WUSB CONN (22) CN26 TV Tuner CONN Qosmio X500 Maintenance Manual (960-Q08)

[Page 237](#) (35) CN47 SATA ODD CONN (37) CN44 1394 CONN (38) CN41 HDMI CONN (39) CN37 USB CONN (40) CN36 ESATA CONN (41) CN35 RJ45 CONN (42) PCN0 VGA Power CONN (43) CN39 VGA CONN B-4 Qosmio X500 Maintenance Manual (960-Q08)

[Page 238](#) Figure B-2-1 Touch Pad board layout (Front) Table B-2-2 Touch Pad board connectors Location Function (01) Mouse Button Left key (02) Mouse Button Left key (03) Mouse Button Right key (04) Mouse Button Right key <Back layout> Qosmio X500 Maintenance Manual (960-Q08)

[Page 239](#) Board Layout Figure B-2-3 Touch Pad board layout (Back) Table B-2-2 Touch Pad board connectors Location Function (01) TP Board to TP Module CONN (02) TP Board to M/B CONN B-6 Qosmio X500 Maintenance Manual (960-Q08)

[Page 240](#) Board Layout B.3 Finger Print Board <Front layout> Figure B-3-1 Finger Print Board layout (Front) Table B-3-2 Finger Print Board connectors Location Function (01) Finger Printer IC Qosmio X500 Maintenance Manual (960-Q08)

[Page 241](#) Board Layout <Back layout> Figure B-3-3 Finger Print Board layout (Back) Table B-3-4 Finger Print Board connectors Location Function (01) Finger Print Board to TP Board connector (02) Finger Print Board to TP Board connector B-8 Qosmio X500 Maintenance Manual (960-Q08)

[Page 242: Appendix C Pin Assignment](#)

PIN No. Signal name PIN No. Signal name LCDVCC LCDVCC LCD-EDIDDATA LCD_EDIDCLK CCD
_POWER LVDS_VADG MIC_GND INT_MIC_R USBP3+_LCD DISPON USBP3-_LCD LCD_TXLCLKOUT+
LCD_TXUCLKOUT+ LCD_TXLCLKOUT- LCD_TXUCLKOUT- LCD_TXLCLKOUT+ LCD_TXUCLKOUT+

LCD_TXL0UT0- LCD_TXU0UT0- LCD_TXL0UT1+ LCD_TXU0UT1+ LCD_TXL0UT1- LCD_TXU0UT1- LCD_TXL0UT2+ LCD_TXU0UT2+ LCD_TXL0UT2- LCD_TXU0UT2- Qosmio X500 Maintenance Manual (960-Q08)

[Page 243](#) Signal name BOARD_DI5 KB_LED_DET# --- KB_LED CN13 Power Board Connectors PIN No. Signal name PIN No. Signal name +5VPCU NBSWON# PWRLED# CN16 Keyboard Connectors PIN No. Signal name PIN No. Signal name K_LED_P MY16 MX17 K_LED_P Qosmio X500 Maintenance Manual (960-Q08)

[Page 244](#) MY14 MY7_K MY3_K MY10 MY11 MY12 MY15 K_LED_P CAPSLED FN_F10 NUMLED CN21 Touchpad & Fingerprint Connectors PIN No. Signal name PIN No. Signal name +5V TP TPDATA TPCLK LED_ON# USBP1+ USBP1- TP_ON_OFF CN18 Felica Connectors Qosmio X500 Maintenance Manual (960-Q08)

[Page 245](#) PIN No. Signal name PIN No. Signal name USBP11- USBP10- USBP11+ USBP10+ USB_EN#2 USB0C#_10_11 +5VPCU +5VPCU +5VPCU +5VPCU HP_JD Port_B# SPDIF/BEEPGAIN# I MIC1-R MIC1-L CN32 New Card Connectors PIN No. Signal name PIN No. Signal name Qosmio X500 Maintenance Manual (960-Q08)

[Page 246](#) +NEW_3VAUX PERST# +NEW_3V +NEW_3V NEW_CLKREQ# CPPE# CLK_PCIE_NEW# CLK_PCIE_NEW I PCIE_RXP2 PCIE_RXP2 PCIE_TXN2 PCIE_TXN2 CN27 Blue Tooth Connectors PIN No. Signal name PIN No. Signal name USBP2+ USBP2- WCS_CLK BT_RESET WCS_DAT BT_EN CN45 RTC Battery Connectors Qosmio X500 Maintenance Manual (960-Q08)

[Page 247](#) PIN No. Signal name CRT_R1 CRT_G1 CRT_B1 CRTHSYNC CRTVSYNC CRTDCLK CRTDDAT CN14 FAN Connectors PIN No. Signal name PIN No. Signal name TH_FAN_POWER1 FANSIG1 CN48 Battery Connectors PIN No. Signal name PIN No. Signal name Qosmio X500 Maintenance Manual (960-Q08)

[Page 248](#) TEMP_MBAT MBDATA MBCLK CN15 MINI PCI-E Card WLAN Connectors PIN No. Signal name PIN No. Signal name WLAN_WAKE# WCS_DATR WCS_CLKR +1.5V LAD0_PCIE LAD1_PCIE CLK_PCIEI_MINI#_ LAD2_PCIE CLK_PCIEI_MINI LAD3_PCIE LFRAME#_PCIE RF_EN_WLAN PLTRST# PCIE_RXN1 +3V_S5 PCIE_RXP1 +1.5V WL_SMCLK Qosmio X500 Maintenance Manual (960-Q08)

[Page 249](#) CL DATA1 MIN +1.5V CL_RST#1_MIN SERIRQ_WLAN CN26 TV Connectors PIN No. Signal name PIN No. Signal name TV-LUMA TV-CHROMA CN33 5 in 1 Card Reader Connectors PIN No. Signal name PIN No. Signal name +3.3V XBCCLK-P3P BCCDET-P3N Qosmio X500 Maintenance Manual (960-Q08)

[Page 250](#) Pin Assignment BCIO-P5P BCRST-P3N IVDET-P3P BCPWON-P3P RESET# +3.3V USB D+ USB D- USB D- USB D+ +3.3V +3.3V CPLGP1-P3P TMPTU1-SXP TMPTU2-SXP +3.3V CN31 DDR Connectors Qosmio X500 Maintenance Manual (960-Q08)

[Page 251](#) PIN No. Signal name +0.9VSMDDR VREF_DIMM M_B_DQ0 M_B_DQ5 M_B_DQ1 M_B_DQ4 M_B_DM0 M_B_DQS#0 M_B_DQS0 M_B_DQ7 M_B_DQ6 M_B_DQ2 M_B_DQ3 M_B_DQ12 M_B_DQ13 M_B_DQ8 M_B_DQ9 M_B_DM1 M_B_DQS#1 M_CLK_DDR3 M_B_DQS1 M_CLK_DDR#3 M_B_DQ14 M_B_DQ11 M_B_DQ15 M_B_DQ10 M_B_DQ20 M_B_DQ21 M_B_DQ17 M_B_DQ16 M_B_DQS#2 PM_EXTTS#1 Qosmio X500 Maintenance Manual (960-Q08)

[Page 252](#) M_B_DQ22 M_B_DQ19 M_B_DQ28 M_B_DQ24 M_B_DQ25 M_B_DQ29 M_B_DM3 M_B_DQS#3 M_B_DQS3 M_B_DQ30 M_B_DQ26 M_B_DQ31 M_B_DQ27 M_CKE3 M_CKE4 +1.8VSUS +1.8VSUS M_B_BS#2 M_B_A14 +1.8VSUS +1.8VSUS M_B_A12 M_B_A11 M_B_A9 M_B_A7 M_B_A8 M_B_A6 +1.8VSUS +1.8VSUS M_B_A5 M_B_A4 M_B_A3 M_B_A2 M_B_A1 M_B_A0 Qosmio X500 Maintenance Manual (960-Q08)

[Page 253](#) M_B_BS#0 M_B_RAS# M_B_WE# M_CS#2 +1.8VSUS +1.8VSUS M_B_CAS# M_ODT2 M_CS#3 M_B_A13 +1.8VSUS +1.8VSUS M_ODT3 M_B_DQ32 M_B_DQ37 M_B_DQ36 M_B_DQ38 M_B_DQS#4 M_B_DM4 M_B_DQS4 M_B_DQ39 M_B_DQ35 M_B_DQ33 M_B_DQ34 M_B_DQ44 M_B_DQ41 M_B_DQ45 M_B_DQ40 M_B_DQS#5 M_B_DM5 M_B_DQS5 M_B_DQ43 M_B_DQ42 M_B_DQ46 M_B_DQ47 Qosmio X500 Maintenance Manual (960-Q08)

[Page 254](#) Pin Assignment M_B_DQ52 M_B_DQ53 M_B_DQ49 M_B_DQ48 M_CLK_DDR4 M_CLK_DDR#4 M_B_DQS#6 M_B_DQS6 M_B_DM6 M_B_DQ55 M_B_DQ51 M_B_DQ50 M_B_DQ54 M_B_DQ56 M_B_DQ60 M_B_DQ57 M_B_DQ61 M_B_DM7 M_B_DQS#7 M_B_DQS7 M_B_DQ59

M_B_DQ63 M_B_DQ62 M_B_DQ59 DDRDAT_SMB DDRCLK_SMB CN41 HDMI Connectors Qosmio X500 Maintenance Manual (960-Q08)

[Page 255](#) HDMITX1P_C HDMITX1N_C HDMITX0P_C HDMITXON_C HDMICLK+C HDMICLK-C HDMI DDCCLK C HAMI DDCDATA C DDC5V HDMI HP CN47 ODD Connectors PIN No. Signal name PIN No. Signal name SATA_TXP4 SATA_TXN4 SATA_RXN4 SATA_RXP4 +5V_ODD +5V_ODD Qosmio X500 Maintenance Manual (960-Q08)

[Page 256](#) P G_RXN9 40 PEG_TXP9 P G_RXP9 42 GND 44 PEG_TXN8 P G_RXN8 46 PEG_TXP8 P G_RXP8 48 GND 50 PEG_TXN7 P G_RXN7 52 PEG_TXP7 P G_RXP7 54 GND 56 PEG_TXN6 P G_RXN6 58 PEG_TXP6 P G_RXP6 Qosmio X500 Maintenance Manual (960-Q08)

[Page 257](#) 94 PEG_TXP0 P G_RXP0 96 GND EXT_CRT_DDCCL M M_REFCLKN EXT_CRT_DDCD M M_REFCL 102 GND 1 G D EXT_HDMI_DDCC P TRST# EXT_HDMI_DDCD S SFANON# 108 GND 7 M INON EXT_LVDS_PNLC G XPG 112 EXT_LVDS_PNLD 111 VGA_MBDATA Qosmio X500 Maintenance Manual (960-Q08)

[Page 258](#) 7 E T_LVDS_TXU1 EXT_LVDS_TXL# E T_LVDS_TXU# EXT_LVDS_TXL0 144 GND 3 E T_LVDS_TXU0 EXT_LVDS_TXLC EXT_LVDS_TXLC E T_LVDS_TXUC E T_LVDS_TXUC 152 X 151 GND 154 X 153 X 156 X 155 X Qosmio X500 Maintenance Manual (960-Q08)

[Page 259](#) 194 GND 193 GND 196 DP_AUX1P 195 EXT_HDMITX0N 198 D P_AUX1N T_HDMITX 200 GND 199 GND CN35 LAN Connectors PIN No. Signal name PIN No Signal name X-TX0P X-TX0 X-TX1P X-TX2P X-TX2N X-TX1N X-TX3P X-TX3N Qosmio X500 Maintenance Manual (960-Q08)

[Page 260](#) Connectors N No. Signal name N No. Signal name BUSBP6+ BP6- USBPWR2 CN32 2nd SATA HDD Connector IN No. Signal name IN No. Signal name A_TXP1 SATA_TXN1 SATA_RXN1 SATA_RXP1 +3.3VSATA +3.3VSATA +3.3VSATA Qosmio X500 Maintenance Manual (960-Q08)

[Page 261](#) WE# SD_D2_C D_WPO#_C SD_D3_C VCC_XD SD/MS_CLK_C D_CMD_C_D3/XD_D0 MS_CD#_C MS_DX/SD_D1_C VCC_XD MS_D0/XD_D2_C MS_D3/XD_D MS_D1/X_D7_C SD_MS_CLK_C MS_BS/XD_D3_C MS_D2/XD_D1_C SD_D0_C MS_D0/XD_D2_C SD_D MS_BS/XD_D3_C XD_D XD_D5_XD_D6_C MS_D1/XD_D7_C VCC_D SD_CD#C SM_WPI#/SD_WP_C Qosmio X500 Maintenance Manual (960-Q08)

[Page 262](#) CN46 SATA HDD Connectors IN No. Signal name IN No. Signal name A_TXP0 SATA_TXN0 SATA_RXN0 SATA_RXP0 +3.3VSATA +3.3VSATA +3.3VSATA CN22 TMA Connector Signal name Signal name PCIE_TXP3 PCIE_TXN3 PCIE_RXP3 PCIE_RXN3 CLK_P CIE_MINI3_TMA CLK_PCIE_MINI3#_TMA Qosmio X500 Maintenance Manual (960-Q08)

[Page 263](#) Pin Assignment TMPSPR-GND TMPSPR-SXP CLKDWN# ALERT PLTRST# CLKREQ# +3V_TMA_VDD_TMA_VDD CN17 Mini Card Connectors Signal name Signal name WAKE# BT_DATA BT_CHCLK +1.5V ---- CLK_PCIE_INI3# CLK_PCIE_F_EN_WLAN PLTRST# Qosmio X500 Maintenance Manual (960-Q08)

[Page 264](#) Pin Assignment E_RXN5 PCIE_RXP5 +1.5V MINI3_SMCLK PCIE_TXN5 MINI3_SMDATA PCIE_TXP5 USBD- USBD+ C_LINK_CLK C_LINK_DAT +1.5V C_LINK_RST CN47 1394 Port PIN No. Signal name PIN No. Signal name L1394_TPB0- L1394_TPB0 L1394_TPA0 L1394_TPA0+ Qosmio X500 Maintenance Manual (960-Q08)

[Page 265](#) Pin Assignment CN6 SPDIF Connectors PIN No. Signal name PIN No. Signal name BOARD_ID2 SPK_L- SPK_L+ SPK_R- SPK_R+ Qosmio X500 Maintenance Manual (960-Q08)

[Page 266](#) Appendix. D Appendix D Display Codes Display Codes Table D-1-1 Scan codes (set 1 and set 2) (1/4) Code set 1 Code set 2 Keytop Note Make Break Make Break ' ~ 7 & BkSp Qosmio X500 Maintenance Manual (960-Q08)

[Page 267](#) Table D-1-2 Scan codes (set 1 and set 2) (2/4) Code set 1 Code set 2 Keytop Note Make Break Make Break Caps Lock ' " Enter Shift (L) No.102 , < . > Shift (R) Qosmio X500 Maintenance Manual (960-Q08)

[Page 268](#) Table D-1-3 Scan codes (set 1 and set 2) (3/4) Code set 1 Code set 2 Keytop Note Make Break Make Break Ctrl Alt (L) Space ALT (R) Home PgUp PgDn Qosmio X500

Maintenance Manual (960-Q08)

[Page 269](#) 5. * This key corresponds to key No. 42 in a 102-key model. 6. * Refer to Table D-6, No. 124 key scan code. 7. * Refer to Table D-7, No. 126 key scan code. Qosmio X500 Maintenance Manual (960-Q08)

[Page 270](#) Shift key, scan codes are changed as listed below: With left Shift With right Shift
Set 1 E0 AA _____ E0 B6 E0 2A _____ E0 36 Set 2 E0 F0 12 _____ E0 F0 59 E0 12
_____ E0 59 Qosmio X500 Maintenance Manual (960-Q08)

[Page 271](#) E0 2A E0 5D E0 DD E0 AA E0 12 E0 2F E0 F0 2F E0 F0 12 Table D-1-7 Scan codes with Fn key Code set 1 Code set 2 Keytop Make Break Make Break CTRL LALT ARROW NUMERIC Scrl Qosmio X500 Maintenance Manual (960-Q08)

[Page 272](#) Code set 2 Keytop Make Break Make Break (-) Table D-1-9 No.124 key scan code Code set 1 Code set 2 Shift Make Break Make Break Prt Sc Common Ctrl Shift Alt Qosmio X500 Maintenance Manual (960-Q08)

[Page 273](#) Display codes Table D-1-10 No.126 key scan code Shift Code set 1 Code set 2 Make Make Pause Common* E1 1D E1 F0 Ctrl* E0 46 7E E0 F0 *: This key generates only make codes. Qosmio X500 Maintenance Manual (960-Q08)

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Appendix E Key Layout United Status (US) Keyboard Figure US keyboard United Status (US) Keyboard (Backlight) Figure US keyboard (Backlight) E-1 - Qosmio X500 Maintenance Manual (960-Q08)

[Page 275](#) 3. United Kingdom (UK) Keyboard Figure UK keyboard 3. United Kingdom (UK) Keyboard (Backlight) Figure UK keyboard (Backlight) E-2 - Qosmio X500 Maintenance Manual (960-Q08)

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VSYNC (14) (15) SDL (15) Figure F-1-1 RGB Monitor ID WraPa round connector (15PIN to 15PIN) LAN Loopback Connector (3) BIDBP (RX+) (1) BIBAP (TX+) (2) BIDAN (TX-) (4) BIDBN (RX-) Figure F-2-1 LAN loopback connector Qosmio X500 Maintenance Manual (960-Q08)

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