



Toshiba Tecra A5 Maintenance Manual

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

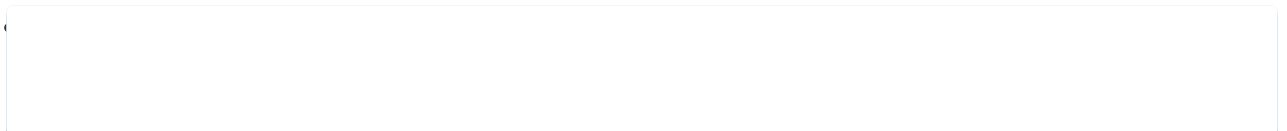
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68

69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118

119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168

169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218

219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255



•

[Table of Contents](#)

-

Troubleshooting

•

Bookmarks

Quick Links

[1 Batteries](#)

[Download this manual](#)

See also: [User Manual](#)



Toshiba Personal Computer
Tecra A5

Maintenance Manual

TOSHIBA CORPORATION

[CONFIDENTIAL]

Table of Contents

[Next Page](#)

1
2
3
4
5

Chapters

[Table of Contents](#) 7

[Table of Contents](#) 33

[Tests and Diagnostics](#) 72

[Table of Contents](#) 105

Troubleshooting

Troubleshooting Procedures	31
Troubleshooting Procedures	32
Troubleshooting Introduction	35
Troubleshooting Flowchart	36
Power Supply Troubleshooting	41
Display Troubleshooting	46
Keyboard Troubleshooting	49
External USB Devices Troubleshooting	51
TV-Out Failure Troubleshooting	53
TouchPad Troubleshooting	55
Speaker Troubleshooting	57
Optical Drive Troubleshooting	59
Modem Troubleshooting	62
PCMCIA Troubleshooting	64
IEEE 1394 Troubleshooting	66
Wireless LAN Troubleshooting	68
Wireless LAN troubleshooting process	69

Related Manuals for Toshiba Tecra A5

[Laptop Toshiba A5-S116 User Manual](#)

A5-s116 user's guide (280 pages)

[Laptop Toshiba A5 User Manual](#)

Notebook pc (178 pages)

[Laptop Toshiba TECRA A5 Specification](#)

Toshiba laptop pc data specification (2 pages)

[Laptop Toshiba Tecra A5 Frequently Asked Questions](#)

Toshiba tecra a5: frequently asked questions (1 page)

[Desktop Toshiba A20-S259 - Satellite - Pentium 4 2.66 GHz Maintenance Manual](#)

Maintenance manual (513 pages)

[Desktop Toshiba A200 Series User Manual](#)

Toshiba portable personal computer user's manual (154 pages)

[Desktop Toshiba Satellite A300 Maintenance Manual](#)

(263 pages)

[Desktop Toshiba Tecra A3 Maintenance Manual](#)

- Personal computer (202 pages)
[Desktop Toshiba Satellite M45 Maintenance Manual](#)
- Personal computer (284 pages)
[Desktop Toshiba Tecra A6 Maintenance Manual](#)
- (283 pages)
[Desktop Toshiba Satellite A70 Maintenance Manual](#)
- (198 pages)
[Desktop Toshiba 7130 Resource Manual](#)
- 7130 user's guide (56 pages)
[Desktop Toshiba Canvio Home User Manual](#)
- (50 pages)
[Desktop Toshiba DX1210 series User Manual](#)
- (168 pages)
[Desktop Toshiba Satellite L300 Maintenance Manual](#)
- (252 pages)
[Desktop Toshiba TECRA M9 Maintenance Manual](#)
- (386 pages)

Summary of Contents for Toshiba Tecra A5

[Page 1](#) Toshiba Personal Computer Tecra A5 Maintenance Manual TOSHIBA CORPORATION [CONFIDENTIAL]...

[Page 2](#) © 2005 by Toshiba Corporation. All rights reserved. Under the copyright laws, this manual cannot be reproduced in any form without the prior written permission of Toshiba. No patent liability is assumed with respect to the use of the information contained herein.

[Page 3](#) This maintenance manual describes how to perform hardware service maintenance for the Toshiba Personal Computer Tecra A5, referred to as the A5 Series in this manual. The procedures described in this manual are intended to help service technicians isolate faulty Field Replaceable Units (FRUs) and replace them in the field.

[Page 4: Hardware Overview](#)

Chapter 4 Replacement Procedures describes the removal and replacement of the FRUs.
 Appendices The appendices describe the following: Handling the LCD module Board layout Pin assignments Keyboard scan/character codes Key layout Screw torque list Reliability
 [CONFIDENTIAL] Tecra A5 Maintenance Manual...

[Page 5](#) Text that you are instructed to type in is shown in the boldface type below: DISKCOPY
 A: B: The display Text generated by the computer that appears on its display is presented in the typeface below: Format complete System transferred [CONFIDENTIAL] Tecra A5 Maintenance Manual...

[Page 6](#) [CONFIDENTIAL] Tecra A5 Maintenance Manual...

[Page 7: Table Of Contents](#)

TV-Out Failure Troubleshooting 2-19 TouchPad Troubleshooting..... 2-21
 Speaker Troubleshooting2-23 2.10 Optical Drive Troubleshooting2-25
 2.11 Modem Troubleshooting.....2-28 2.12 PCMCIA Troubleshooting..... 2-30
 2.13 IEEE 1394 Troubleshooting2-32 2.14 Wireless LAN
 Troubleshooting.....2-34 [CONFIDENTIAL] Tecra A5 Maintenance Manual...

[Page 8](#) LCD Pixels Mode Test3-18 3.13 Magnetic Switch Test.....3-19
3.14 HDD R/W Test3-20 3.15 LAN Test.....3-22 3.16 RTC Test
.....3-14 3.17 Read 1394 GUID.....3-25 3.18 CD Control Button Test
.....3-16 3.19 Speaker EQ Type Check&Re-Write3-18 [CONFIDENTIAL] viii
Tecra A5 Maintenance Manual...

[Page 9](#) System Board4-48 4.18 Fan & CPU 4-51 4.19 USB
Module..... 4-56 4.20 VGA Module.....4-58 4.21 Display
Mask.....4-60 4.22 Speakers4-62 4.23 FL Inverter Board.....
4-64 4.24 LCD Module4-66 [CONFIDENTIAL] Tecra A5 Maintenance Manual...

[Page 10](#) Handling the LCD Module.....A-1 Appendix B Board Layout..... B-1
Appendix C Pin AssignmentsC-1 Appendix D Keyboard Scan/Character
Codes.....D-1 Appendix E Key LayoutE-1 Appendix F Series Screw Torque
ListF-1 Appendix G ReliabilityG-1 [CONFIDENTIAL] Tecra A5
Maintenance Manual...

[Page 11: Chapter 1 Hardware Overview](#)

Chapter 1 Hardware Overview [CONFIDENTIAL]...

[Page 12](#) 1 Hardware Overview [CONFIDENTIAL] 1-ii Tecra A5 Maintenance Manual...

[Page 13](#) Optical device Drives.....1-9 1.4.1 DVD-ROM & CD-RW1-9 1.4.2
DVD-ROM.....1-10 1.4.3 DVD Super Multi Double Layer..... 1-11 Power Supply
.....1-12 Batteries1-14 1.6.1 Main Battery.....1-15 1.6.2 RTC
battery1-16 [CONFIDENTIAL] Tecra A5 Series Maintenance Manual 1-iii...

[Page 14](#) 2.5-inch HDD1-8 Figures Table 1-1 2.5-inch HDD specifications
..... 1-8 Table 1-2 DVD-ROM & CD-RW drive specifications1-9 Table 1-3 DVD-ROM
drive specifications.....1-10 Table 1-4 DVD Super Multi Double Layer drive
specifications..... 1-11 [CONFIDENTIAL] 1-iv Tecra A5 Maintenance Manual...

[Page 15: Features](#)

1.1 Features 1 Hardware Overview Features The Tecra A5 Series Personal Computer uses
extensive Large Scale Integration (LSI), and Complementary Metal-Oxide Semiconductor
(CMOS) technology extensively to provide compact size, minimum weight and high reliability.
This computer incorporates the following features and benefits: •...

[Page 16](#) Support Ultra 100 synchronous DMA Fixed Device Drivers • 5.25" 12.7mm height,
DVD-ROM & CD-RW combo device • 5.25" 12.7mm height, DVD-ROM device • 5.25" 12.7mm
height, DVD Super-multi device Optional Devices • 128MB/256MB/512MB/1024MB SO-DIMM
DDR modules [CONFIDENTIAL] Tecra A5 Maintenance Manual...

[Page 17](#) • One 5-in-1 push-push type flash card connector • One type II PCMCIA slot with
shutter door • One infrared (IrDA 1.1) port • One TV outs-video port (4-pin), compatible with PAL
or NTSC TV standard [CONFIDENTIAL] Tecra A5 Series Maintenance Manual...

[Page 18](#) LAN port The computer comes with an RJ-45 Local Area Network (LAN) port. The LAN
port provides connectivity for LAN. Switches • Power button • Presto or Vivace from power off,
WMP9 (programmable) on Windows [CONFIDENTIAL] Tecra A5 Maintenance Manual...

[Page 19](#) • HDD local standby mode by time out • LCD local standby mode by time out • Low
battery alarm by beep • Auto-backlight off when LCD cover closed • Full ACPI 1.0B supported •
LCD auto-dim mode by time out [CONFIDENTIAL] Tecra A5 Series Maintenance Manual...

[Page 20: System Unit](#)

• Video RAM: Depending on the model. Up to 128 MB integrated solution and shared with main
memory for Intel® 915GM/ 910GML Express; External 64/128MB VGA DDR RAM for ATI
MOBILITY™ RADEON® X600SE GPU; 32/64MB VGA DDR RAM for nVIDIA GeForce Go 6200
[CONFIDENTIAL] Tecra A5 Maintenance Manual...

[Page 21](#) – Single chip with high S/N ratio (>100dB) – Support of S/PDIF digital audio output

is fully compliant with AC 97 2.2 specifications – 3D stereo enhancement – Supports double sampling rate (96KHz) of DVD audio playback [CONFIDENTIAL] Tecra A5 Series Maintenance Manual...

[Page 22: Inch Hard Disk Drive](#)

Logical Blocks (LBA) 78,125,000 117,187,500 156,301,488 195,371,568 Rotational speed (rpm) 4,200/5400 4,200/5400 4200/5400 4200/5400 Toshiba HDD Buffer (MB) 8/16 8/16 8/16 8/16 Hitachi HDD Buffer (MB) NA/8 Bytes per sector Table 1-1 2.5-inch HDD specifications [CONFIDENTIAL] Tecra A5 Maintenance Manual...

[Page 23: Optical Device Drives](#)

DVD: DVD-VIDEO, DVD-ROM, DVD-R (3.9G, 4.7G), DVD-RW (Ver.1.1), DVD-RAM, DVD+R, DVD+RW, DVD+R DL. Formats supported CD-DA, CD-ROM, CD-R, CD-RW, CD-ROMXA, PhotoCD (multi-session), Video CD, CD-Extra (CD+), CD-Text Table 1-2 DVD-ROM & CD-RW drive specifications [CONFIDENTIAL] Tecra A5 Series Maintenance Manual...

[Page 24](#) Data buffer size (Mbytes) 256 KB DVD: DVD-VIDEO, DVD-ROM, DVD-R (4.7G), DVD-RW (Ver.1.1), DVD-RAM, DVD+R, DVD+RW. Formats supported CD-DA, CD-ROM, CD-R, CD-RW, CD-ROMXA, PhotoCD (multi-session), Video CD, CD-Extra (CD+), CD-Text Table 1-3 DVD-ROM drive specifications [CONFIDENTIAL] 1-10 Tecra A5 Maintenance Manual...

[Page 25](#) DVD-ROM, DVD-R (4.7G), DVD-RW (Ver.1.1), DVD-RAM, DVD+R, DVD+RW, DVD+R DL. Formats supported CD-DA, CD-ROM, CD-R, CD-RW, CD-ROMXA, PhotoCD (multi-session), Video CD, CD-Extra (CD+), CD-Text Table 1-4 DVD Super Multi Double Layer drive specifications [CONFIDENTIAL] Tecra A5 Series Maintenance Manual 1-11...

[Page 26: Power Supply](#)

Power Supply This specification defines the performance and characteristics of the 75W AC adapter power supply. It supplies a constant voltage 15V output source for Tecra A5 series notebook computer. A/D conversion • The EC uses 10-bit sampling for A/D conversion to determine the following values: -...

[Page 27](#) • When a new battery is installed, the EC communicates with the E PROM in the battery to read information of the newly installed battery. Battery capacity calculation • The EC reads battery remaining and percentage capacity from the battery through SMBus. [CONFIDENTIAL] Tecra A5 Series Maintenance Manual 1-13...

[Page 28: Batteries](#)

The battery specifications are listed in the table below. Battery name Material Output voltage Capacity Main battery (6 cell) Lithium-Ion 10.8V 4300 mAh Main battery (12 cell) Lithium-Ion 10.8V 8600 mAh RTC battery Lithium 3.0V 15 mAh [CONFIDENTIAL] 1-14 Tecra A5 Maintenance Manual...

[Page 29](#) 4. The battery temperature is abnormal. 5. The battery SMBus communication fails. 6. The battery cell is bad. Detection of full charge A full charge is detected from the battery pack through SMBus when the battery is charging. [CONFIDENTIAL] Tecra A5 Series Maintenance Manual 1-15...

[Page 30](#) RTC battery. The RTC battery is charged by the adaptor or main battery, while the computer is powered on. Status Time Charging Time (power on) About 24 hours Data preservation period (full charge) 1 month [CONFIDENTIAL] 1-16 Tecra A5 Maintenance Manual...

[Page 31: Troubleshooting Procedures](#)

Chapter 2 Troubleshooting Procedures [CONFIDENTIAL]...

[Page 32: Troubleshooting Procedures](#)

External USB Devices Troubleshooting2-17 TV-Out Failure Troubleshooting.....2-19 TouchPad Troubleshooting2-21 Speaker Troubleshooting.....2-23 2.10 Optical Drive Troubleshooting.....2-25 2.11 Modem Troubleshooting2-28 2.12 PCMCIA Troubleshooting2-30 2.13 IEEE 1394 Troubleshooting.....2-32 2.14 Wireless LAN Troubleshooting2-34

[Page 33](#) Figure 2-12 PCMCIA troubleshooting process 2-30 Figure 2-13 IEEE 1394 troubleshooting process..... 2-32 Figure 2-14 Wireless LAN troubleshooting process2-34 Tables Table 2-1 Battery LED 2-8 Table 2-2 DC-IN LED..... 2-9 [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 2-iii...

[Page 35: Troubleshooting Introduction](#)

7. Cleaning kit for optical drive troubleshooting 8. Multimeter 9. External monitor 10. USB compatible keyboard 11. Multimedia sound system with line-in and line-out ports 12. Headphones 13. USB test module and USB cable 14. Music CD [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 36: Troubleshooting Flowchart](#)

Ask the user if a password is registered and, if it is, ask him or her to enter the password. Verify with the customer that Toshiba Windows XP is installed on the hard disk. Operating systems that were not preinstalled by Toshiba can cause the computer to malfunction.

[Page 37](#) R u n C M 1 6 5 . E X E a n d s e l e c t t h e H A R D D I S K i t e m . Y e s Figure 2-1 Troubleshooting flowchart (1/2) [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 38](#) After confirming which diagnostics test has detected Is an error detected by any of the an error, perform the diagnostics tests? appropriate procedure as outlined below. System is normal Figure 2-1 Troubleshooting flowchart (2/2) [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 39](#) 5. If an error is detected by the audio test, perform the Speaker Troubleshooting procedures in Section 2.10 and the Optical Drive Troubleshooting Procedures in Section 2.12. 6. If an error is detected by the modem test, perform the Modem Troubleshooting Procedures in Section 2.12. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 40](#) 6. If an error is detected when using the IEEE1394 device, perform the IEEE1394 device Troubleshooting procedures in Section 2.14. 7. If an error is detected when using the Wireless LAN, perform the Wireless LAN Troubleshooting procedures in Section 2.15. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 41: Power Supply Troubleshooting](#)

(P rocedure 4) P erform internal connection A re the internal power check connections secure? (P rocedure 5) Y es R eplace system board E N D Figure 2-2 Power Supply Troubleshooting Process [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 42: Table 2-1 Battery Led](#)

(LED on for 1 second protected and cannot be re-powered on every 2 seconds) without the AC power connected. Amber color off Battery not in low or critical low state; It's in discharging state [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 43: Table 2-2 Dc-In Led](#)

Check 1 Connect a new AC adaptor. If the problem is not resolved, go to Check 2. Check 2 Insert a new battery. If the problem is still not resolved, go to Procedure 3. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 44](#) • If the battery LED does not light, go to Check 6. Check 6 Make sure the battery pack is installed in the computer correctly. If the battery is properly installed and the battery LED still does not light, go to Procedure 4. [CONFIDENTIAL] 2-10 TECRA A5 Series Maintenance Manual...

[Page 45](#) Make sure that the battery cable is firmly connected to the system board. If it is connected firmly, go to Check 3. Check 3 The system board may be damaged. Replace it with a new one following the instructions in Chapter 4. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 2-11...

[Page 46: Display Troubleshooting](#)

(Procedure 3) R e p l a c e s y s t e m b o a r d E N D Figure 2-3 Display troubleshooting process [CONFIDENTIAL] 2-12 TECRA A5 Series Maintenance Manual...

[Page 47](#) Refer to Chapter 3, Tests and Diagnostics for details. If an error is detected, go to Procedure 3. If an error is not detected, the display is functioning properly. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 2-13...

[Page 48](#) Check 5 Replace the CPU with another of the same specifications. If the problem still exists, perform Check 6. Check 6 The system board may be damaged. Replace it with a new one. [CONFIDENTIAL] 2-14 TECRA A5 Series Maintenance Manual...

[Page 49: Keyboard Troubleshooting](#)

(Procedure 3) R e p l a c e s y s t e m b o a r d E N D Figure 2-4 Keyboard troubleshooting process [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 2-15...

[Page 50](#) The keyboard may be damaged. Replace it with a new one following the instructions in Chapter 4. If the problem still exists, perform Check 3. Check 3 The system board may be damaged. Replace it with a new one following the instructions in Chapter 4. [CONFIDENTIAL] 2-16 TECRA A5 Series Maintenance Manual...

[Page 51: External Usb Devices Troubleshooting](#)

R e p l a c e s y s t e m b o a r d (Procedure 2) E N D Figure 2-5 External USB device troubleshooting process [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 2-17...

[Page 52](#) Go to Procedure 2. Procedure 2 Replace system board If the error persists, the system board may be damaged. Replace it with a new one following the instructions in Chapter 4. [CONFIDENTIAL] 2-18 TECRA A5 Series Maintenance Manual...

[Page 53: Tv-Out Failure Troubleshooting](#)

T V f u n c t i o n i n g o k ? s e t Y e s R e p l a c e s y s t e m b o a r d E N D Figure 2-6 TV-out troubleshooting process [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 2-19...

[Page 54](#) Try connecting a different television to the computer. If the replacement television works, the original set may be damaged. If the replacement set does not work the system board may be damaged. Replace it with a new one following the instructions in Chapter 4. [CONFIDENTIAL] 2-20 TECRA A5 Series Maintenance Manual...

[Page 55: Touchpad Troubleshooting](#)

2 Troubleshooting Procedures TouchPad Troubleshooting START TouchPad connection check (Procedure 1) TouchPad replacement check (Procedure 2) Replace system board Figure 2-8 TouchPad troubleshooting process [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 2-21...

[Page 56](#) The TouchPad unit or FPC may be defective or damaged. Replace each with a new one following the steps in Chapter 4. If the FDD is still not functioning properly, replace the system board with a new one following the steps in Chapter 4. [CONFIDENTIAL] 2-22 TECRA A5 Series Maintenance Manual...

[Page 57: Speaker Troubleshooting](#)

- see Figure 2-1 Perform earphone test (Procedure 2) Do earphones function correctly? Perform connection check (Procedure 3) Perform replacement check (Procedure 4) Replace system board Figure 2-9 Speaker troubleshooting process [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 2-23...

[Page 58](#) If the stereo speakers don't sound properly, the stereo speakers may be defective or damaged. Replace them with new ones. If the stereo speakers still do not work properly, try replacing in turn the audio board and system board. [CONFIDENTIAL] 2-24 TECRA A5 Series Maintenance Manual...

[Page 59: Optical Drive Troubleshooting](#)

Audio CD functions ok? cleaning check (Procedure 2) Perform software check (Procedure 3) Perform diagnostic test (Procedure 4) Perform connection and replacement check (Procedure 5) Replace system board Figure 2-10 Optical drive troubleshooting process [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 2-25...

[Page 60](#) The audio test program stored in the Diagnostics Disk will test the drive's ability to play an audio CD. See Chapter 3 for details. If any errors occur while executing the diagnostic program, go to Procedure 5. [CONFIDENTIAL] 2-26 TECRA A5 Series Maintenance Manual...

[Page 61](#) Chapter 4, Replacement Procedures. If the drive is still not functioning properly, perform Check 3. Check 3 The system board may be damaged. Replace it with new one following the instructions in Chapter 4, Replacement Procedures. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 2-27...

[Page 62: Modem Troubleshooting](#)

(Procedure 1) Check / replace Computer unable to telephone line and detect telephone signal? connections Perform connection check (Procedure 2) Perform replacement check (Procedure 3) Replace system board Figure 2-11 Modem troubleshooting process [CONFIDENTIAL] 2-28 TECRA A5 Series Maintenance Manual...

[Page 63](#) The modem card or RJ-11 jack may be faulty. Try replacing them. If the problem persists, the system board may be defective or damaged. Replace the System Board with a new one following the steps in Chapter 4, Replacement Procedures. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 2-29...

[Page 64: Pcmcia Troubleshooting](#)

2.12 PCMCIA Troubleshooting START Perform SYCARD test (Procedure 1) Do errors occur during PCMCIA unit is SYCARD test? not faulty. Perform PCMCIA socket replacement check (Procedure 2) Replace system board Figure 2-12 PCMCIA troubleshooting process [CONFIDENTIAL] 2-30 TECRA A5 Series Maintenance Manual...

[Page 65](#) Disassemble the computer following the steps described in Chapter 4, Replacement Procedures and replace the socket. If the problem persists, the system board may be defective or damaged. Replace the system board with a new one following the steps in Chapter 4. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 2-31...

[Page 66: IEEE 1394 Troubleshooting](#)

Was an IEEE 1394 problem detected? faulty. Continue troubleshooting - refer to Figure 2.1 Perform connection and replacement check (Procedure 3) Replace system board Figure 2-13 IEEE 1394 troubleshooting process [CONFIDENTIAL] 2-32 TECRA A5 Series Maintenance Manual...

[Page 67](#) The transmission cable may be damaged. Replace with a good cable. If the malfunction persists, go to Check 4 Check 4 The system board may be damaged. Replace it with a new one following the instructions in Chapter 4. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 2-33...

[Page 68: Wireless Lan Troubleshooting](#)

Wireless LAN system is not faulty. Continue Was a wireless LAN problem detected? troubleshooting - refer to Figure 2.1 Perform connector and replacement check (Procedure 2) Replace wireless LAN antenna/unit Replace system board [CONFIDENTIAL] 2-34 TECRA A5 Series Maintenance Manual...

[Page 69: Wireless Lan Troubleshooting Process](#)

2 Troubleshooting Procedures Figure 2-14 Wireless LAN troubleshooting process [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 2-35...

[Page 70](#) The wireless LAN unit may be damaged. Replace it with a new one following the instructions in Chapter 4. If the problem still exists, perform Check 4. Check 4 The system board may be damaged. Replace it with a new one following the instructions in Chapter 4.

[Page 71: Chapter 3 Tests And Diagnostics](#)

Chapter 3 Tests and Diagnostics [CONFIDENTIAL]...

[Page 72](#) LCD Pixels Mode Test3-18 3.13 Magnetic Switch Test.....3-19
3.14 HDD R/W Test3-20 3.15 LAN Test.....3-22 3.16 RTC Test
.....3-24 3.17 Read 1394 GUID.....3-25 3.18 CD Control Button Test
.....3-26 3.19 Speaker EQ Type Check&Re-Write3-28 [CONFIDENTIAL] 3-ii
TECRA A5 Series Maintenance Manual...

[Page 73: The Diagnostic Test](#)

A formatted working diskette for the floppy disk drive test (Floppy Disk Drive Test) A data CD disc (CD-ROM Test) A LAN loopback connector (LAN Test) The following sections explain how to execute the Test & Diagnostic Program and detail the tests within the program. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 74: Executing The Diagnostic Test](#)

3. Tests and Diagnostics Executing the Diagnostic Test Toshiba MS-DOS is required to run the DIAGNOSTICS PROGRAM. To start the DIAGNOSTIC PROGRAM, follow these steps: 1. Insert the diagnostics diskette #1 in the floppy disk drive and turn on the computer. (The diagnostics diskette contains the MS-DOS boot files.) And then follow the instructions to...

[Page 75](#) 3. Tests and Diagnostics R. The below display will show up at the beginning of T&D program If the test result passes, the following display will show up: [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 76](#) If an error is detected and a test fails, the following message displays: Then press any key for next actions - the below display presented if copying test log file onto diskette is necessary. This action will be executed when "Y" key pressed. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 77](#) And then it will check if it's necessary to leave this program. Program will quit when "Y" key pressed and it will go back main menu for next test if "N" key pressed. NOTE: Press Pause to pause a test and Enter to resume. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 78: Config Check Test](#)

NOTE: To execute this test, you must input unit Part Number as "Uppercase Character". Then it will show its configuration is correct (in green color) or failed (in color). The screen should display as below, indicating whether the test is passed or failed after comparison. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 79](#) 3 Tests and Diagnostics [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 80: Dmi Check Test](#)

SKU data. NOTE: To execute this test, you must input unit Part Number as "Uppercase Character". The screen should display as below, indicating whether the test is passed or failed after comparison. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 81: Speaker Audio Test](#)

OK within 3 times "Beep" sound generated. NOTE: Remember to tune up the volume as "Maximum" before this test starts. The screen should display as below, indicating whether the test is passed or failed after the question. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 82: Fan On/Off Test](#)

The computer will stop the fan working after any key pressed. Listen to check if the fan is "OFF" - it means no rotating sound. The screen should display as below, indicating whether the test is passed or failed after the question. [CONFIDENTIAL] 3-10 TECRA A5 Series Maintenance

Manual...

[Page 83: Main Battery Charge Test](#)

Remain charge capacity (0 ~ 100%) Charge function (PASS/FAIL) - "Battery Is Full" showed when "remain charge capacity" is 100% The screen should display as below, indicating whether the test is passed or failed when finished. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 3-11...

[Page 84: Fdd Test](#)

NOTE: The write-protected device of this formatted diskette should be "Disable". The subtests run automatically. NOTE: Press "Esc" key can skip the current subtest. The screen should display as below, indicating whether the subtests pass or fail when finished. [CONFIDENTIAL] 3-12 TECRA A5 Series Maintenance Manual...

[Page 85: Cd-Rom Test](#)

Each item can be chosen by manual. When each test item finished, the CD-ROM tray will open. Check whether the tray can open automatically. NOTE: Press "Esc" key can skip the current subtest. The screen should display as below, indicating whether the subtests pass or fail when finished. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 3-13...

[Page 86: Keyboard Test](#)

NOTE: The "Fn" key cannot be tested in the keyboard test. To determine whether the "Fn" key is working correctly, press "Fn+F6" or "Fn+F7" keys to check if LCD display brightness change gradually. [CONFIDENTIAL] 3-14 TECRA A5 Series Maintenance Manual...

[Page 87](#) Pressing a key also reveals that key's scan codes in the upper right hand corner of the screen. When the key is depressed, its make code is displayed. When the key is released, the break code is shown. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 3-15...

[Page 88: Mouse \(Pad\) Test](#)

The Touch Pad button subtest allows users to test their Touch Pad buttons. If the buttons are clicked, the cursors should appear in the corresponding box of the button figure that is displayed on the screen as below. [CONFIDENTIAL] 3-16 TECRA A5 Series Maintenance Manual...

[Page 89](#) It will indicate whether the subtests pass or fail after three questions. NOTE: The above figure has three compartments although the Touch Pad installed may only have two buttons. In this case, the central compartment in the figure does not correspond to any button. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 3-17...

[Page 90: Lcd Pixels Mode Test](#)

- including 320*200 (4/16/256 colors), 640*200 (2/16 colors), 640*350 (2/16 colors), 640*480 (2/16/256 colors), 800*600 (256 colors) and 1024*768 (256 colors). The screen should display as below, indicating whether the test is passed or failed after the question. [CONFIDENTIAL] 3-18 TECRA A5 Series Maintenance Manual...

[Page 91: Magnetic Switch Test](#)

Follow below steps to run this test: 1. Close the LCD cover. 2. Heard 3 "Beep" sound happened during LCD closed. 3. Open the LCD. Then it will indicate whether the test is passed or failed. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 3-19...

[Page 92: Hdd R/W Test](#)

Firmware revision Serial number CHR (Cylinder High Register) mode - including cylinders, heads, sectors and sizes. LBA (Logical Block Addressing) mode - including sectors and sizes. Support Ultra DMA Mode Support PIO Mode [CONFIDENTIAL] 3-20 TECRA A5 Series Maintenance Manual...

[Page 93](#) NOTE: Press "Ctrl + Break" keys can terminate the current subtest. The screen should display as previous picture, indicating whether the subtest is passed or failed when finished. NOTE: The AC adaptor should be connected to successfully run this test. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 3-21...

[Page 94: Lan Test](#)

Test Rate Control . The LAN test includes three subtests of the: Speed1000 including ASIC Loopback (Speed=1000) Speed100 including ASIC Loopback (speed=100) 3. Speed 10 - including ASIC Loopback (Speed=10) The subtests run automatically. [CONFIDENTIAL] 3-22 TECRA A5 Series Maintenance Manual...

[Page 95](#) 3. Tests and Diagnostics The screen should display as below, indicating pass will go on to next test FAIL as below [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 3-23...

[Page 96: Rtc Test](#)

Checks the computer's RTC (Real Time Clock) and calendar functions by comparing the DOS and CMOS values. The test runs automatically. The screen should display as below, indicating whether the test is passed or failed when finished. [CONFIDENTIAL] 3-24 TECRA A5 Series Maintenance Manual...

[Page 97: Read 1394 Guid](#)

This test will check if the computer's EEPROM 1394GUID code is correct. NOTE: Must open the RAM Door to see RAM connector GUID bar code before test item begins. The figure below will be displayed: [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 3-25...

[Page 98: Cd Control Button Test](#)

Press each of the buttons on the front panel in turn. A yellow bar will appear on the relevant section of the figure if the button passes the test. or 3 button, The figure below will be displayed: [CONFIDENTIAL] 3-26 TECRA A5 Series Maintenance Manual...

[Page 99](#) 3. Tests and Diagnostics Press each of the buttons on the front panel in turn. A yellow bar will appear on the relevant section of the figure if the button passes the test. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 3-27...

[Page 100: Speaker Eq Type Check&Re-Write](#)

The EQ Type test includes two subtests of the: 1. Read EQ Type from EEPROM 2. Re-Write EQ Type to EEPROM NOTE: To execute this test, you must select speaker type (Harman or No brand). The figure below will be displayed: [CONFIDENTIAL] 3-28 TECRA A5 Series Maintenance Manual...

[Page 101](#) 3. Tests and Diagnostics The Item2 figure below will be displayed: NOTE: Write speaker EQ must reboot to enable EQ. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 3-29...

[Page 102](#) 3. Tests and Diagnostics [CONFIDENTIAL] 3-30 TECRA A5 Series Maintenance Manual...

[Page 103: Replacement Procedures](#)

Chapter 4 Replacement Procedures [CONFIDENTIAL]...

[Page 104](#) 4. Replacement Procedures [CONFIDENTIAL] 4-ii TECRA A5 Series Maintenance Manual...

[Page 105](#) System Board4-49 4.18 Fan & CPU 4-52 4.19 USB Module..... 4-58 4.20 VGA Module.....4-60 4.21 Display Mask.....4-62 4.22 Speakers4-64 4.23 FL Inverter Board..... 4-66 4.24 LCD Module4-68 [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-iii...

[Page 106: Figure](#)

Figure 4-25 Disconnecting the Bluetooth connector4-25 Figure 4-26 Removing the Bluetooth module bracket.....4-25 Figure 4-27 Separating the components.....4-25 Figure 4-28 Removing the wireless LAN unit screw.....4-27 Figure 4-29 Removing the wireless LAN door.....4-27 [CONFIDENTIAL] 4-iv TECRA A5 Series Maintenance Manual...

[Page 107](#) Removing the system board..... 4-50 Figure 4-59 Removing the fan screws from the top of the system board.....4-52 Figure 4-60 Removing the heat sink screws.....4-53 Figure 4-61 Removing the heat sink.....4-54 [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 108](#) Removing the screws.....4-66 Figure 4-75 Removing the connectors4-66 Figure 4-76 Removing the FL inverter board4-67 Figure 4-77 Removing the screws.....4-68 Figure 4-78 Removing the screws.....4-68 Figure 4-79 Removing the LCD module4-69 [CONFIDENTIAL] 4-vi TECRA A5 Series Maintenance Manual...

[Page 109: General](#)

Expansion Memory Module Modem Keyboard Display Assembly Bluetooth Module Top Cover Display Mask Memory Speakers Direct System Board FL Inverter Board Touch Play Button Heat Sink Module VGA Module USB Module Memory LCD Module [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 110](#) Expansion Memory Module Modem Keyboard Display Assembly Bluetooth Module Top Cover Display Mask Memory Speakers Direct System Board FL Inverter Board Touch Play Button Heat Sink Module VGA Module USB Module Memory LCD Module [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 111](#) Always use the lithium ion battery pack or a backup battery that is authorized by Toshiba or is compatible with the unit. Since other battery packs have different specifications, they may be incompatible with the unit, and may burst or explode.

[Page 112](#) The computer contains many sharp edges and corners, so be careful not to injure yourself. 10. After you have replaced an FRU, make sure the computer is functioning properly by performing the appropriate test on the FRU you have fixed or replaced. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 113](#) FRU. After installing an FRU in the computer, confirm that the FRU and the computer are functioning properly. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 114](#) Tweezers, to lift out screws that you cannot grasp with your fingers. ESD mats for the floor and the table you are working on. ESD wrist strap or heel grounder. Anti-static carpeting or flooring. Air-ionizers in highly static sensitive areas. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 115: Figure](#)

Slide the battery bay latch to release the battery pack and then remove the battery pack from the bay. Figure 4-2 Removing the battery pack NOTE: For environmental reasons, do not throw away a spent battery pack. Please return spent battery packs to Toshiba. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 116](#) WARNING: The battery is a lithium ion battery and can explode if not properly replaced, used, handled or disposed of. Use only batteries recommended by Toshiba as replacements. Slide the battery pack into the battery bay. The battery bay latch will click automatically.

[Page 117: Figure](#)

2. Push the eject button again to pop the PC Card out slightly. 3. Grasp the PC Card and remove it. Figure 4-3 Removing the PC card 4. Push the eject button back into place, if necessary. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 118: Installing The Pc Card](#)

Make sure the eject button does not stick out. Push it back into place if required. Insert the PC Card in the slot and press gently to ensure a firm connection. Figure 4-4 Installing the PC card [CONFIDENTIAL] 4-10 TECRA A5 Series Maintenance Manual...

[Page 119: Hdd](#)

Removing the HDD Module Follow the steps below to remove HDD module: 1. Turn the computer upside down. 2. Remove the black M2.5x3 screw to release the HDD door. Figure 4-6 Removing the HDD door screw [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-11...

[Page 120: Removing The Hdd Door](#)

Seat the HDD in the HDD case and bracket, and secure it with four M3x3 black screws. Insert the HDD unit into the HDD slot. Secure the HDD door with a black M2.5x3 screw. [CONFIDENTIAL] 4-12 Tecra A5 Series Maintenance Manual...

[Page 121: Removing The Cover Screw](#)

Loosen the embedded safety screw securing the memory module socket cover. Figure 4-9 Removing the cover screw Slide your fingernail or a thin object under the cover and lift it off. Figure 4-10 Removing the expansion memory module cover [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-13...

[Page 122](#) Grasp the module and pull it out. Figure 4-12 Removing the expansion memory module CAUTION: Do not touch the connectors on the expansion memory module or on the computer. Debris on the connectors may cause memory access problems. [CONFIDENTIAL] 4-14 Tecra A5 Series Maintenance Manual...

[Page 123](#) Fit the module's connectors into the computer's connectors at about a 45-degree angle and press the module carefully to ensure a firm connection. Push the module down so it lies flat. The latches on either side will click into place to secure the module. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-15...

[Page 124: Removing The Optical Drive Module](#)

Remove the M2.5x6 screw securing the optical drive module. Figure 4-13 Removing the optical drive screw Use your hand to push the module and then slide the module from the bay. Figure 4-14 Removing the optical drive module [CONFIDENTIAL] 4-16 Tecra A5 Series Maintenance Manual...

[Page 125](#) 1. Make sure that the expansion memory door is opened and the ODD screw (M2.5x6) is removed. 2. Slide the device into the optical drive module bay. 3. Use the M2.5x6 screw to secure the optical drive module. 4. Replace the expansion memory module cover. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-17...

[Page 126: Figure](#)

To disassemble the optical drive, first remove the drive from its module bay as described in the previous section, and then follow the steps below. Remove the two M2x3 screws from the bracket plate. Remove the bracket plate. Figure 4-15 Removing the optical drive bracket [CONFIDENTIAL] 4-18 Tecra A5 Series Maintenance Manual...

[Page 127](#) 1. Position the optical drive bracket plate so that it is aligned with the rear panel of optical drive. 2. Secure the optical drive bracket plate with two black M2x3 screws. 3. Install the optical drive module into the bay as described in the preceding section. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-19...

[Page 128: Removing The Strip Cover](#)

2. Insert a thin tool such as a flat screwdriver into the gap between the strip cover and keyboard to lever the strip cover up. Figure 4-16 Removing the strip cover 3. Remove the strip cover. Figure 4-17 Removing the strip cover [CONFIDENTIAL] 4-20 Tecra A5 Series Maintenance Manual...

[Page 129](#) Figure 4-18 Removing the keyboard screws 5. Push the center of the strip cover and lift the keyboard out, revealing the keyboard cable underneath. Disconnect the cable. Figure 4-19 Removing the keyboard cable [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-21...

[Page 130: Disconnecting The Keyboard Cable](#)

2. Place the keyboard on the top cover and secure it with two black M2.5x3 screws. 3. Set the strip cover and press down to secure the strip cover until the latches engage. [CONFIDENTIAL]

[Page 131: Removing The Bluetooth Module Screw](#)

Remove the black M2.5x3 screw securing the Bluetooth module to the system board. Figure 4-21 Removing the Bluetooth module screw Disconnect the Bluetooth FFC cable from the system board. Figure 4-22 Disconnecting the FFC cable [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-23...

[Page 132: Lifting The Bluetooth Module](#)

4 Replacement Procedures Insert a screwdriver to gently lift the Bluetooth module. Figure 4-23 Lifting the Bluetooth module Remove the Bluetooth module. Figure 4-24 Removing the Bluetooth module [CONFIDENTIAL] 4-24 Tecra A5 Series Maintenance Manual...

[Page 133: Figure](#)

Disconnecting the Bluetooth connector Remove the two M2x3 screws to remove the bracket holding the Bluetooth module. Figure 4-26 Removing the Bluetooth module bracket Separate the Bluetooth module components. Figure 4-27 Separating the components [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-25...

[Page 134](#) Secure the module to the system board using one black M2.5x3 screw. Connect the FFC cable to the module to connect to the system board. Connect the Bluetooth connector (brown) to the module. [CONFIDENTIAL] 4-26 Tecra A5 Series Maintenance Manual...

[Page 135: Removing The Wireless Lan Unit](#)

1. Remove the black M2x4 screw securing the wireless LAN door. Figure 4-28 Removing the wireless LAN unit screw 2. Remove the wireless LAN door. Figure 4-29 Removing the wireless LAN door [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-27...

[Page 136](#) Figure 4-30 Removing the wireless LAN antenna connectors 4. Use your fingers to press the two latches of the LAN unit holder. The LAN unit pops up. Figure 4-31 Releasing the wireless LAN unit [CONFIDENTIAL] 4-28 Tecra A5 Series Maintenance Manual...

[Page 137](#) 5. Grasp the wireless LAN unit and pull it out. Figure 4-32 Removing the wireless LAN unit CAUTION: Do not touch the connectors on the wireless LAN unit or on the computer. Debris on the connectors may cause malfunction. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-29...

[Page 138](#) 3. Attach the white antenna to the main connector, and the black antenna to the Aux connector. 4. Use the black M2x4 screw to secure the wireless LAN door. [CONFIDENTIAL] 4-30 Tecra A5 Series Maintenance Manual...

[Page 139: Removing The Modem Cover Screw](#)

Remove the battery and any optional devices before removing the modem as described in the following instructions: 1. Remove the M2.5x3 screw to release the modem cover. Figure 4-33 Removing the modem cover screw 2. Remove the modem cover. Figure 4-34 Removing the modem cover [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-31...

[Page 140](#) 3. Remove two M2.5x3 screws securing the modem module. Figure 4-35 Removing the modem module screws 4. Disconnect the modem cable from the modem module and carefully lift the unit from its connector. Figure 4-36 Removing the modem module [CONFIDENTIAL] 4-32 Tecra A5 Series Maintenance Manual...

[Page 141](#) 1. Connect the modem cable to the modem module. 2. Fit the modem onto its connector and secure it with two black M2.5x3 screws. 3. Replace the M2.5x3 screw to fix the modem cover. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-33...

[Page 142: Disconnecting All Cables](#)

Bluetooth connector from the module. 2. Disconnect the LCD power cable and speaker cable from the top cover. Figure 4-37 Disconnecting all cables 3. Remove two M2.5x6 screws securing the LCD assembly from the rear side. [CONFIDENTIAL] 4-34 Tecra A5 Series Maintenance Manual...

[Page 143: Disconnecting The Rear Screws](#)

4 Replacement Procedures Figure 4-38 Disconnecting the rear screws [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-35...

[Page 144](#) 4 Replacement Procedures 4. Remove two M2.5x6 screws securing the LCD assembly to the top cover. Figure 4-39 Removing the front screws 5. Remove the LCD assembly. Figure 4-40 Removing the display assembly [CONFIDENTIAL] 4-36 Tecra A5 Series Maintenance Manual...

[Page 145: Top Cover](#)

Feed the wireless LAN module's antennae wires through the small hole on the system board towards the rear side. Connect the Bluetooth connector to the Bluetooth module. Connect the LCD power cable to the top chassis. Reinstall the keyboard and wireless LAN module. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-37...

[Page 146: Removing The Top Cover](#)

Removing the top cover (front panel screws) 2. Detach the upper FFC cable (from direct play button module) and touch pad FPC cable from the top cover. 3. Detach the USB and LAN cables. Figure 4-42 Removing the cables [CONFIDENTIAL] 4-38 Tecra A5 Series Maintenance Manual...

[Page 147](#) M2.5X9 (back panel screws) Figure 4-43 Removing the top cover (back panel screws) 5. Turn the computer over and lift off the top cover. Figure 4-44 Removing the top cover [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-39...

[Page 148: Touch Pad](#)

Turn the computer upside down and secure the following screws: • M2.5X6: five screws, two from the battery compartment, and three from the HDD compartment • M2.5X9: eleven screws from the back panel [CONFIDENTIAL] 4-40 Tecra A5 Series Maintenance Manual...

[Page 149: Removing The Touch Pad Bracket](#)

2. Remove one M2.5x3 screw securing the Touch Pad Bracket to the rear side of the top cover. Figure 4-45 Removing the touch pad screw 3. Remove the bracket. Figure 4-46 Removing the touch pad bracket [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-41...

[Page 150](#) 1. Turn the top cover upside down and place the Touch Pad, and the Touch Pad Bracket, in position on top. 2. Secure the Touch Pad bracket with one M2.5x3 screw. 3. Connect the Touch Pad FFC cable to the Touch Pad. [CONFIDENTIAL] 4-42 Tecra A5 Series Maintenance Manual...

[Page 151: Removing The Direct Play Button Module](#)

Figure 4-48 Removing the direct play button module screws 2. Disconnect the FCC cable from the system board. Lift and remove the module. Figure 4-49 Removing the direct play button module [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-43...

[Page 152](#) 2. Secure the module to the top cover with three M2.5x3 screws. 3. Feed the upper FFC through the opening on the top cover so that it may be connected to the system board. [CONFIDENTIAL] 4-44 Tecra A5 Series Maintenance Manual...

[Page 153: Removing The Aluminum Foil](#)

1. Remove the aluminum foil covering the memory module. Figure 4-50 Removing the aluminum foil 2. Remove one M2.5x6 screw attached to the metallic strip. Figure 4-51 Removing the screw [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-45...

[Page 154: Lifting The Metal Strip](#)

4 Replacement Procedures 3. Gently lift the metallic strip on top of the memory module. Figure 4-52 Lifting the metal strip 4. Remove the metallic strip. Figure 4-53 Removing the metal strip [CONFIDENTIAL] 4-46 Tecra A5 Series Maintenance Manual...

[Page 155](#) 5. Press the two latches holding the memory module and hold them apart. The memory module pops out. Figure 4-54 Releasing the memory module 6. Remove the memory

module from the slot by sliding it out gently. Figure 4-55 Removing the memory module [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-47...

[Page 156](#) 1. Place the memory module in the slot at an angle of 45 degrees with the horizontal. 2. Press the module gently in place till the latches snap into place to secure the module. [CONFIDENTIAL] 4-48 Tecra A5 Series Maintenance Manual...

[Page 157: Removing The System Board](#)

2. Remove the USB cables from the system board. 3. Remove the modem cable from the system board. Figure 4-56 Removing the connectors 4. Remove the power connector. 5. Remove any tape that might be securing other connectors. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-49...

[Page 158](#) You may have to use your fingers to expand the chassis so as to release the system board. Figure 4-58 Removing the system board [CONFIDENTIAL] 4-50 Tecra A5 Series Maintenance Manual...

[Page 159](#) 1. Seat the system board in the chassis. Take care to align all the ports and connectors in their respective openings on the chassis. 2. Replace the three M2.5x6 screws to secure the system board. 3. Connect the CRT, USB, and modem cables. 4. Connect the power connector. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-51...

[Page 160: Removing The Fan](#)

Remove two M2.5x3 screws securing the fan from the top side of the system board. Figure 4-59 Removing the fan screws from the top of the system board Turn the system board upside down. Remove the four M2.5x6 screws from the heat sink. [CONFIDENTIAL] 4-52 Tecra A5 Series Maintenance Manual...

[Page 161](#) 4 Replacement Procedures Figure 4-60 Removing the heat sink screws [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-53...

[Page 162](#) 4 Replacement Procedures Remove the heat sink. Figure 4-61 Removing the heat sink Remove the M2.5x3 screw securing the fan. Figure 4-62 Removing the fan screw Remove the fan connector from the system board. [CONFIDENTIAL] 4-54 Tecra A5 Series Maintenance Manual...

[Page 163](#) Turn the cam on the CPU socket with a flat-blade screwdriver so that the notch on the cam is aligned with the open side of the CPU socket to unlock the CPU. Figure 4-64 Turning the CPU cam [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-55...

[Page 164](#) 4 Replacement Procedures Gently lift out the CPU. Figure 4-65 Removing the CPU [CONFIDENTIAL] 4-56 Tecra A5 Series Maintenance Manual...

[Page 165](#) Seat the fan module and secure with the three screws. Attach the fan connector. Seat the heat sink over the CPU and secure with four screws in the order indicated on the heat sink. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-57...

[Page 166: Removing The Usb Module](#)

Figure 4-66 Removing the USB module screw 2. Remove the USB module while taking care to remove the USB port connectors from their openings on the chassis. Figure 4-67 Removing the USB module [CONFIDENTIAL] 4-58 Tecra A5 Series Maintenance Manual...

[Page 167](#) To install the USB module, follow the steps below and refer to the figure in the preceding section: 1. Seat the USB module while aligning the USB port connectors with their openings on the chassis. 2. Secure the module by placing the M2.5x6 screw and tightening it. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-59...

[Page 168: Removing The Vga Module](#)

2. Remove the M2.5x6 screw securing the VGA module to the chassis. Figure 4-68 Removing the VGA module screw 3. Remove the VGA module while taking care to remove the VGA and USB port connectors from their openings on the chassis. [CONFIDENTIAL] 4-60 Tecra A5 Series

[Page 169](#) To install the VGA module, follow the steps below and refer to the figure in the preceding section: 1. Seat the VGA module while aligning the VGA and USB port connectors with their openings on the chassis. 2. Secure the module by placing the M2.5x6 screw and tightening it. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-61...

[Page 170: Removing The Display Mask](#)

Start with the four snaps at the top of the display mask. Continue unsnapping the display mask along the two sides and the bottom edge to remove the display mask. Figure 4-71 Removing the display mask [CONFIDENTIAL] 4-62 Tecra A5 Series Maintenance Manual...

[Page 171](#) To install the display mask, follow the steps below and refer to the figures in the preceding section. Seat the display mask and secure the snaps on each side. Secure the display mask with four M2.5x6 screws. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-63...

[Page 172: Removing The Speaker Screws](#)

1. Remove the two M2.5x6 screws from the speaker assembly. Figure 4-72 Removing the speaker screws 2. Remove the speaker strip. Figure 4-73 Removing the speaker strip 3. Remove the screws attaching each speaker to the metallic strip to separate the speakers [CONFIDENTIAL] 4-64 Tecra A5 Series Maintenance Manual...

[Page 173](#) 1. Seat the speakers on the metal strip and secure each of them with a screw. 2. Seat the speaker strip on the LCD module. 3. Secure the speaker strip with two M2.5x6 screws. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-65...

[Page 174: Removing The Fl Inverter Board](#)

Remove one M2x5 silver screw securing the FL inverter board to the LCD display assembly. Figure 4-74 Removing the screws Disconnect the two connectors on either side of the board. Figure 4-75 Removing the connectors [CONFIDENTIAL] 4-66 Tecra A5 Series Maintenance Manual...

[Page 175: Figure](#)

To install the FL inverter board, follow the steps below and refer to the figure in the preceding section. Place the FL inverter board on the LCD module. Secure one M2x5 black screw connecting the FL inverter board to the LCD display assembly. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-67...

[Page 176: Removing The Lcd Module](#)

Remove two M2.5x6 black screws securing the LCD module bracket to the chassis. Figure 4-77 Removing the screws Remove six M2x3 screws securing the LCD module bracket to the LCD module. Figure 4-78 Removing the screws [CONFIDENTIAL] 4-68 Tecra A5 Series Maintenance Manual...

[Page 177](#) 4 Replacement Procedures Remove the LCD module. Figure 4-79 Removing the LCD module NOTE: If the LCD module malfunctions, remove the LCD cable and LCD bracket. Then replace the whole LCD module unit. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual 4-69...

[Page 178](#) 1. Seat the LCD module in the display assembly with the LCD module bracket and secure it with six M2x3 black screws. 2. Use two M2x3 black screws to secure the LCD module to the chassis. [CONFIDENTIAL] 4-70 Tecra A5 Series Maintenance Manual...

[Page 179: 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. Note: The panel's polarized surface is easily scratched and damaged, so handle it carefully. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 180](#) [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 181](#) Do not apply cleanser directly to the panel. Cleaner 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. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 182](#) Glass is used in the panel, so be careful not to drop it or let it strike a hard object, which could cause breakage or cracks. CMOS-LSI circuits are used in the module, so guard against damage from electrostatic discharge. Be sure to wear a wrist or ankle grounding device when handling the module. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 183](#) 8. Do not store the module at temperatures below its 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. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 184](#) 10. If you transport the module, do not use packing material that contains epoxy resin (amine) or silicon glue (alcohol or oxime). These materials can release gas that can damage the panel's polarization. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 185](#) [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 186: Board Layout](#)

Appendix B Appendix B Board Layout B.1 System Board (FRDSY*) Top View Figure B-1 System board (FRDSY*) layout (Top) [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 187](#) B.2 System Board (FRDSY*) Button View Figure B-2 System board (FRDSY*) layout (Button) [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 188](#) B-1 System board ICs (top and bottom) Mark Name Intel Alviso Chip Intel ICH6-M ENE KB910Q Marvell 88SA8040 TI PCI7411 PU11 MAX1532AEL LPC47N217 LPC47N207 BIOS ROM Marvell 8036/8053 RealTEK ALC250VD ICS954226AG [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 189](#) CPU Socket JP24 TV-Out JP25 ODD conn JP26 MDC conn JP27 5 in 1 conn JP28 ROM Socket JP29 HDD conn JP30 Mini-PCI conn JP31 Hardware EQ conn PJP1 Power core conn PJP2 Battery conn [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 190: Pin Assignments](#)

Pin No. Signal Name +5VS +3VS DSUB_12_DATA DSUB_15_CL HSYNC VSYNC CRT_R_L CRT_G_L CRT_B_L Table C-3 USB(CRT/B) Connector pin assignments (10-pin) Pin No. Signal name Pin No. Signal Name +5VALW +5VALW SYSON# USB20_N1 USB20_P1 USB20_N3 USB20_P3 [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 191](#) Table C-4 LVDS I/F pin assignments (30-pin) Pin No. Signal name Pin No. Signal Name GMCH_TXOU GMCH_TXOU +LCDVDD GMCH_TXOU +LCDVDD GMCH_TXOU +3VS GMCH_TXOU GMCH_LCD GMCH_TXOU GMCH_LCD DATA DAC_BRIG GMCH_TXCLK INVT_PWM GMCH_TXCLK DISPOFF# [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 192](#) SPKR- SPKR+ SPKL- SPKL+ JP7, JP20 Table C-7 SODIMM I/F pin assignments (200-pin) (1/4) Pin No. Signal name Pin No. Signal Name VREF VREF DDR_DQ1 DDR_DQ0 DDR_DQ6 DDR_DQ4 +2.5V +2.5V DDR_DQS0 DDR_DM0 DDR_DQ7 DDR_DQ6 [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 193](#) DDR_DQ10 +2.5V +2.5V DDR_CLK1 +2.5V DDR_CLK1# DDR_DQ16 DDR_DQ17 DDR_DQ20 DDR_DQ21 +2.5V +2.5V DDR_DQS2 DDR_DM2 DDR_DQ18 DDR_DQ19 DDR_DQ22 DDR_DQ23 DDR_DQ25 DDR_DQ24 +2.5V +2.5V DDR_DQ20 DDR_DQ28 DDR_DQS3 DDR_DM3 DDR_DQ27 DDR_DQ36 DDR_DQ30 DDR_DQ31 +2.5V +2.5V +2.5V +2.5V [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 194](#) [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 195](#) DDR_SBS0 A118 DDR_SRAS# A119 DDR_SWE# A120 DDR_SCAS# A121 DDR_SCS#0 A122 DDR_SCS#1 DDR_SMA13 DDR_DQ36 DDR_DQ37 DDR_DQ33 DDR_DQ32 +2.5V +2.5V DDR_DQS4 DDR_DM4 DDR_DQ38 DDR_DQ39 DDR_DQ35 DDR_DQ34 DDR_DQ41 DDR_DQ45 +2.5V +2.5V DDR_DQ44 DDR_DQ40 DDR_DQS5 DDR_DM5 DDR_DQ46 DDR_DQ42

[CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 196](#) DDR_DQ47 DDR_DQ43 +2.5V +2.5V [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 197](#) +2.5V +2.5V D_CK_SDATA A194 D_CK_SCLK A196 +3.3VS A198 Table C-8 Switch board connector pin assignments (12-pin) Pin No. Signal name Pin No. Signal Name PWR_LED_1# PWR_SUSPLE SKU_ID1 KSO17 ON/OFFBTN# IEBTN# MODEBTN# EC_PLAYBTN EC_STOPBTN EC_FRDBTN# [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 198](#) Ec_REVBTN# [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 199](#) Signal Name BT_DET# BT_RESET# BT_WAKE_UP BT_DETACH CH_CLK USB20_P5 USB20_N5 CH_DATA +BT_VCC C.10 JP10 Table C-10 T/P connector pin assignments (12-pin) Pin No. Signal name Pin No. Signal Name SW_R SW_L TP_CLK TP_DATA +5VS +5VS [CONFIDENTIAL] C-10 TECRA A5 Series Maintenance Manual...

[Page 200](#) KSO7 KSO3 KSI7 KSO13 KSO9 KSO8 KSO11 KSO10 KSO14 KSO15 +3VS CAPS_LED# PADS_LED# NUM_LED# C.12 JP12 Table C-11 PCMCIA I/F pin assignments (68-pin) (2/1) Pin No. Signal name Pin No. Signal Name CE1# [CONFIDENTIAL] TECRA A5 Series Maintenance Manual C-11...

[Page 201](#) Table C-11 PCMCIA I/F pin assignments (68-pin) (2/2) Pin No. Signal name Pin No. Signal Name READY VPP1 CD1# CE2# VS1# VPP2 VS2# RESET WAIT# REG# BVD2 BVD1 CD2# [CONFIDENTIAL] C-12 TECRA A5 Series Maintenance Manual...

[Page 202](#) Signal name Pin No. Signal Name SPEAK OUT L SPEAK OUT R NBA_PLUG C.16 JP16 Table Audio jack (microphone) pin assignments (6-pin) Pin No. Signal name Pin No. Signal Name MIC IN +AUD_REF [CONFIDENTIAL] TECRA A5 Series Maintenance Manual C-13...

[Page 203](#) Table C-18 Docking I/F pin assignments (240-pin) (1/4) Pin No. Signal name Pin No. Signal Name DKN_B+ DKN_B+ DCOCT1# +5VS PS_CLK KB_CLK 1394_PHYRST_S3P DPCONF_S5P D_DDC_CLK D_CRT_R D_CRT_G D_CRT_VSYN D_CRT_B DVI_SCLK DVI_TXD2+ DVI_TXD2- DVI_TXD1- DVI_TXD1+ DVI_TXD0- DVI_TXD0+ DVI_TXC+ DVI_TXC- DVI_DET [CONFIDENTIAL] C-14 TECRA A5 Series Maintenance Manual...

[Page 204](#) [CONFIDENTIAL] TECRA A5 Series Maintenance Manual C-15...

[Page 205](#) Table C-18 Docking I/F pin assignments (240-pin) (2/4) Pin No. Signal name Pin No. Signal Name RJ45_MDI3+ RJ45_MDI3- MDC1_RING MDC2_TIP DKN_B+ DKN_B+ EJCTSW# +5VS PS_DATA KB_DATA 1394_DILSON_S3P D_DDC_DATA D_CRT_HSYN DVI_SDATA [CONFIDENTIAL] C-16 TECRA A5 Series Maintenance Manual...

[Page 206](#) Table C-18 Docking I/F pin assignments (240-pin) (3/4) Pin No. Signal name Pin No. Signal Name DKN_B+ DKN_B+ D_EC_SMB_C +5VS +5VALW TPA1+ TPB1+ AUD_SUDMU T_P3# LINEOL LINEIL LINEIR# DOCK_ON/OFF_BTN# DCD# DSR# LPTPE R_LPTSTB# [CONFIDENTIAL] TECRA A5 Series Maintenance Manual C-17...

[Page 207](#) Signal name Pin No. Signal Name +3VALW RJ45_GND RJ45_MDI0+ RJ45_MDI0- DKN_B+ DKN_B+ D_EC_SMB_D +5VS TPA1- TPB1- USB20_P0 USB20_N0 LINEOR LINEOR# LINEOL# LINEIL# LINEIR RTS# CTS# DTR# LPTSLCT LPTBUSY LPTACK# LPTSLCTIN# LPTINIT# LPTERR# AFD#/3M# [CONFIDENTIAL] C-18 TECRA A5 Series Maintenance Manual...

[Page 208](#) Table C-19 VGA I/F pin assignments (160-pin) (1/3) Pin No. Signal name Pin No. Signal Name VGA_DDC_CL DAC_BRIG VGA_DDC_DA DISPOFF# INVT_PWM VGA_TV_LUM VGA_CRT_R VGA_TV_CRM VGA_CRT_G VGA_CRT_VS VGA_CRT_HS VGA_CRT_B SUSP# GMCH_ENBK +3VALW +2.5VS +1.5VS +2.5VS +1.5VS DVI_DET DVI_TXC+ DVI_SCLK [CONFIDENTIAL] TECRA A5 Series Maintenance Manual C-19...

[Page 209](#) PLT_RST VG_CLK_PCIE_VG_CLK_PCIE_VG_PCIE_GTX_C_PCIE_MTX_C_MRX_P1 GRX_P1_PCIE_GTX_C_PCIE_MTX_C_MRX_N1 GRX_N1_PCIE_GTX_C_PCIE_MTX_C_MRX_P2 GRX_P2_PCIE_GTX_C_PCIE_MTX_C_MRX_N2 GRX_N2_PCIE_GTX_C_PCIE_MTX_C_MRX_P3 GRX_P3_PCIE_GTX_C_PCIE_MTX_C_MRX_N3 GRX_N3_PCIE_GTX_C_PCIE_MTX_C_MRX_P4 GRX_P4_PCIE_GTX_C_PCIE_MTX_C [CONFIDENTIAL] C-20 TECRA A5 Series Maintenance

Manual...

[Page 210](#) MRX_N4 GRX_N4 PCEI_GTX_C_PCIE_MTX_C MRX_P5 GRX_P5 PCEI_GTX_C_PCIE_MTX_C MRX_N5 GRX_N5 PCEI_GTX_C_PCIE_MTX_C MRX_P6 GRX_P6 PCEI_GTX_C_PCIE_MTX_C MRX_N6 GRX_N6 PCEI_GTX_C_PCIE_MTX_C MRX_P7 GRX_P7 [CONFIDENTIAL] TECRA A5 Series Maintenance Manual C-21...

[Page 211](#) GRX_N10 PCEI_GTX_C_PCIE_MTX_C MRX_P11 GRX_P11 PCEI_GTX_C_PCIE_MTX_C MRX_N11 GRX_N11 PCEI_GTX_C_PCIE_MTX_C MRX_P12 GRX_P12 PCEI_GTX_C_PCIE_MTX_C MRX_N12 GRX_N12 PCEI_GTX_C_PCIE_MTX_C MRX_P13 GRX_P13 PCEI_GTX_C_PCIE_MTX_C MRX_N13 GRX_N13 PCEI_GTX_C_PCIE_MTX_C MRX_P14 GRX_P14 PCEI_GTX_C_PCIE_MTX_C MRX_N14 GRX_N14 [CONFIDENTIAL] C-22 TECRA A5 Series Maintenance Manual...

[Page 212](#) [CONFIDENTIAL] TECRA A5 Series Maintenance Manual C-23...

[Page 213](#) Table C-21 1394 Connector pin assignments (6-pin) Pin No. Signal name Pin No. Signal Name TPB0- TPB0+ TPA0- TPA0+ C.22 JP24 Table C-22 TV-OUT Connector pin assignments (4-pin) Pin No. Signal name Pin No. Signal Name LUMA CRMA [CONFIDENTIAL] C-24 TECRA A5 Series Maintenance Manual...

[Page 214](#) SD_D9 SD_D6 SD_D10 SD_D5 SD_D11 SD_D4 SD_D12 SD_D3 SD_D13 SD_D2 SD_D14 SD_D1 SD_D15 SD_D0 SD_DREQ SD_IOR# IDE_DIOW# IDE_DIORDY IDE_DDAACK# IDE_IRQ IDE_DA1 +5VCD IDE_DA0 IDE_DA2 SW_SD_CS#1 SW_SD_CS#3 SHDD_LED# +5VCD +5VCD +5VCD +5VCD +5VCD [CONFIDENTIAL] TECRA A5 Series Maintenance Manual C-25...

[Page 215](#) C.24 JP26 Table C-24 MDC Connector pin assignments (30-pin) Pin No. Signal name Pin No. Signal Name +5VS_MDC +3VS_MDC_R +3V_MDC +3VS_MDC AC97_SYNC AC97_SDOUT AC97_SDIN1 AC97_RST# AC97_SDIN1 AC97_BITCLK [CONFIDENTIAL] C-26 TECRA A5 Series Maintenance Manual...

[Page 216](#) DAT3_SMD3 MSBS_SDCM D_SMWE2 MSCLK_SDCL +VCC_5IN1 MSDATA0_SD MSDATA1_SD DAT0_SMD0 DATA1_SMD1 SDCD# SMCD# SMRB# SMRE# SDWP_SMCD SMCLE MSBS_SDCM SMALE D_SMWE2 SMELWP# MSDATA0_SD MSDATA1_SD DAT0_SMD0 DATA1_SMD1 MSDATA2_SD MSDATA3_SD DAT2_SMD2 DAT3_SMD3 SMD4 SMD5_SMD6 SMD7 +VCC_5IN1 SDWP_SMCE [CONFIDENTIAL] TECRA A5 Series Maintenance Manual C-27...

[Page 217](#) KBA14 KBA13 KBA19 KBA12 KBA10 KBA11 ADB7 KBA9 ADB6 KBA8 ADB5 FWE# ADB4 RESET# +3VALW INT_FLASH_E +3VALW INT_FLASH_S KBA18 ADB3 KBA7 ADB2 KBA6 ADB1 KBA5 ADB0 KBA4 FRD# KBA3 KBA2 FSEL# KBA1 KBA0 [CONFIDENTIAL] C-28 TECRA A5 Series Maintenance Manual...

[Page 218](#) Signal Name PIDE_HRESE PIDE_HDD7 PIDE_HDD8 PIDE_HDD6 PIDE_HDD9 PIDE_HDD5 PIDE_HDD10 PIDE_HDD4 PIDE_HDD11 PIDE_HDD3 PIDE_HDD12 PIDE_HDD2 PIDE_HDD13 PIDE_HDD1 PIDE_HDD14 PIDE_HDD0 PIDE_HDD15 PIDE_HDREQ PIDE_HDIOW PIDE_HDIOR# PIDE_HIORDY SEC_CSEL PD_DACK# PIDE_HINTRQ PIDE_HDA1 PIDE_HDA0 PIDE_HDA2 PIDE_HCS0# PIDE_HCS1# +5VS +5VS +5VS [CONFIDENTIAL] TECRA A5 Series Maintenance Manual C-29...

[Page 219](#) Signal Name SWITCH PCI_PIRQH# +5VS +3VS PCI_PIRQG# CLK_PCI_MINI PCI_RST# +3VS PCI_REQ#1 PCI_GNT#1 +3.3V AD31 WLANME# AD29 AD30 AD27 +3.3V AD25 AD28 AD26 CBE3# AD24 AD23 MINI_IDSEL AD21 AD22 AD19 AD20 AD17 AD18 CBE2# AD16 [CONFIDENTIAL] C-30 TECRA A5 Series Maintenance Manual...

[Page 220](#) [CONFIDENTIAL] TECRA A5 Series Maintenance Manual C-31...

[Page 221](#) IRDY# +3.3V FRAME# PM_CLKRUN# TRDY# PCI_SERR# STOP# +3.3V PCI_PERR# DEVSEL# C/BE1# AD14 AD15 AD13 AD12 AD11 AD10 AD09 AD08 C/BE0# AD07 +3.3V +3.3V AD06 AD05 AD04 AD02 AD03 AD00 +5VS_MINIPCI AD01 +5VS_MINIPCI +3.3V [CONFIDENTIAL] C-32 TECRA A5 Series Maintenance Manual...

[Page 222](#) Pin No. Signal name Pin No. Signal Name DC_IN_S2 DC_IN_S2 C.30 PJP2 Table C-30 BATT Connector pin assignments (7-pin) Pin No. Signal name Pin No. Signal Name BATT_S1 ALI/NIMH# AB/I TS_A EC_SMDA EC_SMCA [CONFIDENTIAL] TECRA A5 Series Maintenance Manual

[Page 223: Keyboard Scan/Character Codes](#)

Appendix D Keyboard Scan/Character Codes Table D-1 Scan code s (set 1 and set 2) (1/4) Code set 1 Code set 2 eytop Note Make Break Make reak ' ~ 7 & B kSp [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 224](#) Table D-1 Scan code s (set 1 and set 2) (2/4) Code set 1 Code set 2 Note Make Break Make reak ' " Enter Shift , < . > Shift (R) [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 225](#) -1 Scan cod es (set 1 and s et 2) (3/4) Code set 1 Code set 2 Keytop Note Make Break Make Break Ctrl(L) Alt (L) Space Ctrl(R) ← Home ↑ ↓ PgUp PgDn → [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 226](#) 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. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 227](#) With left Shift ht Shift With rig Set 1 E0 AA _____ E0 B6 E0 2A _____ E0 36 Set 2 E0 F0 12 _____ E0 F0 59 E0 12 _____ E0 59 [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 228](#) AA E0 12 E0 2F E0 F0 2F E0 F0 12 Table D-4 Scan codes with Fn key Code set 1 Code set 2 Keytop Make Break Make Break L-CTRL L-ALT AR ROW NUMERIC Scrl [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 229](#) Code set 1 Code set 2 eyto Make Break Break (-) Table D- 6 No.124 key scan code set 1 Co e set 2 Shift Break Make Br ak Common Ctrl + Shift + Alt + [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 230](#) Table D-7 No.126 key scan code Key top Shift Code set 1 Code set 2 Make Make Pause Common Ctrl *: This key generates only make codes. [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 231: Key Layout](#)

Appendix E Appendix E Key Layout United States (US) Keyboard Figure E-1 US keyboard United Kingdom (UK) Keyboard [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 232](#) Figure E-2 UK keyboard [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 233](#) Spanish (SP) Keyboard Figure E-3 SP keyboard Japanese (JA) Keyboard Figure E-4 JA keyboard [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 234](#) Korean (KO) Keyboard Figure E-5 KO keyboard Canada France (CF) Keyboard Figure E-6 CF keyboard [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 235](#) Portuguese (PO) Keyboard Figure E-7 PO keyboard US-INTE (UI/INTE) Keyboard Figure E-8 US-INTE Keyboard Germanic (GR) Keyboard [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 236](#) Figure E-9 GR keyboard E.10 France (FR) Keyboard Figure E-10 FR keyboard [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 237](#) E.11 Chinese (CH) Keyboard Figure E-11 CH keyboard E.12 Swissc-Darfon(SW) Keyboard Figure E-12 Swiss keyboard [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 238](#) E.13 Italian (IT) Keyboard Figure E-13 IT keyboard E.14 Belgiun (BE) Keyboard Figure E-14 BE keyboard [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 239](#) E.15 Arabic (AR-E) Keyboard Figure E-15 AR-E keyboard E.16 Czech (CZ) Keyboard

Figure E-16 CZ keyboard [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

[Page 240](#) E.17 Estonian (ES) Keyboard Figure E-17 ES keyboard [CONFIDENTIAL] E-10 TECRA A5 Series Maintenance Manual...

[Page 241](#) E.18 Greek (GK) Keyboard Figure E-18 GK keyboard E.19 Hebrew (HB) Keyboard Figure E-19 HB keyboard [CONFIDENTIAL] TECRA A5 Series Maintenance Manual E-11...

[Page 242](#) E.20 Hungary (HG) Keyboard Figure E-20 HG Keyboard [CONFIDENTIAL] E-12 TECRA A5 Series Maintenance Manual...

[Page 243](#) E.21 Norwegian (NW) Keyboard Figure E-21 NW keyboard E.22 Dutch (DU) Keyboard Figure E-22 DU keyboard [CONFIDENTIAL] TECRA A5 Series Maintenance Manual E-13...

[Page 244](#) E.23 Lithuanian (LI) Keyboard Figure E-23 LI keyboard E.24 Russian (RU) Keyboard Figure E-24 RU keyboard [CONFIDENTIAL] E-14 TECRA A5 Series Maintenance Manual...

[Page 245](#) E.25 Turkish (TR) Keyboard Figure E-25 TR keyboard E.26 Yugoslavian (YU) Keyboard Figure E-26 YU keyboard [CONFIDENTIAL] TECRA A5 Series Maintenance Manual E-15...

[Page 246](#) E.27 Danish (DM) Keyboard Figure E-27 DM keyboard E.28 Slovak (SA) Keyboard Figure E-28 SA keyboard [CONFIDENTIAL] E-16 TECRA A5 Series Maintenance Manual...

[Page 247](#) E.29 Swedish (SD) Keyboard Figure E-29 SD keyboard [CONFIDENTIAL] TECRA A5 Series Maintenance Manual E-17...

[Page 248: Series Screw Torque List](#)

M2.5*3 (silver) 2.5~3.0kgfcm UP (BATTERY) KILL S/W PCB- MMCK25030N0 M2.5*3 (silver) 2.0~2.5kgfcm LOG LOW LCD BRK (L/R)- MMCK25050Z0 M2.5*5 2.5~3.0kgfcm LCD COVER BEZEL-L MMCK25050Z0 M2.5*5 BRK (L/R)-LCD 2.5~3.0kgfcm COVER MMCK25050Z0 M2.5*5 MDC TO MB 2.0~2.5kgfcm [CONFIDENTIAL] Tecra A5 Series Maintenance Manual...

[Page 249](#) SADDLE - UPPER LOWER - MMCK25050Z0 M2.5*5 SADDLE - 2.5~3.0kgfcm UPPER LOWER - SPK - SADDLE - MMCK25050Z0 M2.5*5 2.5~3.0kgfcm UPPER LOG LOW-LOG MMCK25050Z0 M2.5*5 2.5~3.0kgfcm LOW -MB - MMCK25050Z0 M2.5*5 2.5~3.0kgfcm UPSHD - UPPER [CONFIDENTIAL] Tecra A5 Series Maintenance Manual...

[Page 250](#) PLATE STAND OFF-MB- LOWER OG LOW-LOG MACA0012304 M2.5*10 2.5~3.0kgfcm 2.0*3 ZBL (B lack BRK (L/ R) - MAAA0015320 1.2~1.5kgfcm nickel) LCD PANEL 2.0*3 ZBL (B lack INVE RTER - L MAAA0015320 1.5~2.0kgfcm nickel) COVER [CONFIDENTIAL] Tecra A5 Series Maintenance Manual...

[Page 251](#) IMS STANDOFF (D-SUB NUT WS /O PORT NUT - MAFA94001N0 4.75 *9.6 NI Zi 2.0~2.5kgfcm LOG_LOW_MB plated) PCMCIA SLOT MAA20100302 .0X12 silv 1.5~2.0kgfcm TO MB LCD HINGE - MACK25080Z0 M2.5X8 4.0~4.5kgfcm HINGE SADDLE [CONFIDENTIAL] Tecra A5 Series Maintenance Manual...

[Page 252](#) ELAL203C000 M2.5*3 .9 (Half thread) 2.5~3.0kgfcm SCREW MMCK20050N0 M2*5 PCMCIA TO MB 1.5~2.0kgfcm ODD CONN TO MMCK20050N0 M2*5 1.5~2.0kgfcm HDD CONN TO MMCK20050N0 M2*5 1.5~2.0kgfcm (M2*4.2+4 THERMAL AMZKM000400 2.0~2.5kgfcm (Screw+Spring) IMS) PLATE TO MB [CONFIDENTIAL] Tecra A5 Series Maintenance Manual...

[Page 253](#) [CONFIDENTIAL] Tecra A5 Series Maintenance Manual...

[Page 254: Reliability](#)

Appendix G Reliability The following table shows MTBF (Mean Time Between Failures) for e ach component. Table G-1 MTB Compon Time (hours 50,000 Keyboard 40,000 300,000 Removable FDD 30,000 Optical (DVD/CD) drive 60,000 AC adaptor 60,000 [CONFIDENTIAL] TECRA A5 Series Maintenance Manual...

