



# TECH 2006

### Ion Hardware

#### Motherboard: N-Force (ECS)

- CPU: AMD 1.2 GHz
- Memory: 128MB PC2700 DDR 333MHz (DDR – Double Data Rate)

**Note:** The motherboard does not emit an audio tone when DDR DIMM is defective or not seated correctly.

**Note:** No video or sound: Try reseating DDR DIMM and CPU on the motherboard.

#### I/O board: Titan I/O board: 4 LEDs: D1, D2, D3 & D8

- Setup and calibration buttons are located on the I/O board and OSD board.

### Force Hardware:

#### Motherboard: ECS

CPU: Intel Celeron 533\566 MHz

Memory: DIMM – Dual inline memory module (PC133)

#### I/O Board: 3 in 1 I/O & USB I/O Board

##### 3 in 1 I/O board:

- Used EVO, Edge, Walleto & Fusion and are not interchangeable with the USB I/O board.

##### USB I/O (square I/O board)

- Used in the Radion, Elite, Vibe, Classic, 19" Upright & Mr. VIPs.
- USB I/O jumper settings for the FORCE Series games:

J5B - USB Port setting for Elite & Upright games.

J5A - USB Port setting for Radion & Classic games.

J5B



JP6 JP5

J5A



JP6 JP5

**Note:** If the jumpers are not set correctly, the I/O board will display an "Invalid Key" error.

**Note:** Check I/O board LEDs for voltages: Diodes D1: +3vdc, D2: +5vdc, D4: VSS & D3: USB VCC.

All four LEDs should be lit red. If not, an "Invalid Key" error will appear.

Setup and calibration buttons are located on the I/O board and OSD board.

### Maxx Hardware

#### Motherboard: Mitsubishi, Itox, Telco 586, & Unicorn.

- CPU: Windchip, Rise. 200 MHz
- Memory: DIMM – Dual inline memory module (PC100)

**Note:** Telco 586 requires SIMMs.

#### I/O boards: Three versions: I/O Heavy, I/O Lite & I/O Mini & Riser board.

Difference between the I/O boards:

- I/O Heavy has sockets.
- I/O Light does not have sockets.
- I/O Mini is not interchangeable with the I/O Heavy or Light.

**Note:** I/O heavy and I/O light are interchangeable.

### XL Hardware

#### Motherboard: DeAmeritek 486 & Telco 486

- CPU: AMD 66 MHz
- Memory: SIMM – Single inline memory module (Fastpage)

#### I/O board: CRT500 Zeus I/O Board & Riser board.

U11 - NVRAM DS1230 – Non-Volatile RAM. Retains game information (hi score, bookkeeping, etc)

U12 - EPROM – This is the operating system for CD-ROM based games and is classified as Drive C:\

- ERROR READING DRIVE D: U12 EPROM does not match the CD software version.

##### Operating system errors:

- OPERATING SYSTEM NOT FOUND: Indicates a problem with the DeAmertek motherboard.
- DISC BOOT FAILURE: Indicates a problem with the Telco motherboard.
- Hard Drive based games: The motherboard not communicating with the hard drive.
- CD-based games: The motherboard not communicating with U12 EPROM on the I/O board.  
Check U12 EPROM for bent pins or damaged traces under socket.

**Note:** All DIPswitches DS2 & DS3 must be in OFF position.

**Note:** Earlier XL I/O boards have DS1 DIPswitches: 1, 4 & 8 must be in the OFF position.

**Note:** XL I/O board has small volume control incorporated on it. (Small blue disc)

**SOFTWARE:**

**ION SERIES**

**ION 2006**

Version: V20.00 – V20.27

Software: SA3505-XX // SA35XX-XX

- V20.00 requires V20.10 for Graphics over clock problem.

**ION 2006.5**

Version: V21.00

Software: SA3505-XX // SA35XX-XX

**SOFTWARE:**

**FORCE SERIES**

**FORCE 2002**

Version: V8.00 - V8.06

Security Key: SA3050-XX

- V8.01, V8.02 requires V9.01 CD for calibration, audio, and high score problems.

**FORCE 2002.5**

Version: V9.00 - V9.01

Security Key: SA3050-XX

**FORCE 2003**

Version: V10.00 - V10.09

Security Key: SA3059-XX

- V10.00 - V10.07 requires V11.05 CD for credit, reboot, and lockup problems.

**FORCE 2003.5**

Version: V11.00 - V11.05

Security Key: SA3059-XX

**FORCE 2004**

Version: V12.00 - V12.10

Security Key: SA3068-XX

- V12.00 – V12.11 requires V13.00 CD for reboots and lockups.

**FORCE 2004.5**

Version: 13.00 - V13.10

Security Key: SA3068-XX

**FORCE 2005**

Version: V14.00 - V14.22

Security Key: SA3083-XX

- V14.00-V14.21 requires V15.02 version for "local host login" reboot problem

**FORCE 2005.5**

Version: V15.02

Security Key: SA3083-XX

**FORCE 2006**

Version: V20.00 – V20.27

Security Key: SA3501-XX // SA3504-XX

64 Meg of DIMM (64512K) required Force 2002(5), 2003(5), 2004(5) 2005(5) and 2006(5)

**FORCE 2006.5**

Version: V21.00

Security Key: SA3501-XX // SA3504-XX

## MAXX SERIES

MAXX – First release

Version: R00, R01 – R06, V3.01 - V3.07

Security Key: SA3022-XX, SA3031-XX

- V3.01 requires V3.06 and V3.07 kits for lockup problems.

## 2K

Version: V4.00 - V4.01

Security Key: SA3035-XX

- V4.00, V4.01 require V5.01 for a calibration problem.

## 2K PLUS

Version: V5.00 - V5.01

Security Key: SA3035-XX

## DIAMOND

Version: V6.01 - V6.05

Security Key: SA3042-XX

- V6.00 requires V7.02 for the Golf game-pricing problem.

## DIAMOND2

Version: V7.00 - V7.02

Security Key: SA3042-XX

## EMERALD

Version: V8.01 - V8.06

Security Key: SA3048-XX

- V8.01, V8.02 requires V9.01 for calibration, audio, and high score problems.

## EMERALD2

Version: V9.01

Security Key: SA3048-XX

## RUBY

Version: V10.00 - V10.09

Security Key: SA3056-XX

- V10.00, V10.07 require V11.05 CD for credit, reboot, and lockup problems.

## RUBY2

Version: V11.00 - V11.05

Security Key: SA3056-XX

## SAPPHIRE

Version: V12.00 - V12.10

Security Key: SA3065-XX

- V12.00 – V12.11 requires V13.00 CD for reboots and lockups.

## SAPPHIRE2

Version: V13.00 - V13.11

Security Key: SA3065-XX

## JADE

Version: V14.00 - V14.22

Security Key: SA3079-XX

- V14.00-V14.21 requires V15.00 version for "local host login" reboot problem.

## JADE2

Version: V15.xx

Security Key: SA3079-XX

## CROWN

Version: V16.xx

Security Key: SA3511-XX

Memory Requirements:

32 Meg of DIMM (32768K) requires Maxx 1<sup>st</sup> release, 2K(+), Diamond(2) & Emerald(2).

64 Meg of DIMM (64512K) required Maxx Ruby(2) & Sapphire(2) Jade(2) & Crown.

## XL SERIES

CD – R0, R0A, R0B, R0C, R0D, R1, R2, R3, R3A, R3B, R3C.

SECURITY KEY – SA3008-XX - R001, R002, R003, R004, R005 – Square key

EPROM – U11, U12, U12-R2, SA3014-03 U12-R3 / U12-R4.

## XL5000

CD – R5A, R5B, R5D, R5E, R5G, R5H, R5I.

SECURITY KEY – SA3008-XX R006 – Square Key

EPROM – SA3014-03 U12-R3 / U12-R4.

## XL6000

CD – R02, R04, R05, R07

SECURITY KEY – SA3019-XX R00 – Square key

EPROM – SA3014-04 U12-R00

## XL GOLD

CD – R00, R01.

SECURITY KEY – SA3033-XX-R00 – Square key

EPROM – SA3014-04 U12-R00

## XL GOLD

HARD DRIVE – R01.

SECURITY KEY – SA3033-XX R00 – Square key

SA3039-XX R00 – Button key

## XL PLATINUM

CD – V1.01, V1.02, V1.03.

SECURITY KEY – SA3046-XX-R00 – Button key

EPROM – SA3014-04 U12-R00

## XL DOUBLE PLATINUM

HARD DRIVE – V1.01, V1.02, V2.00, V2.01.

SECURITY KEY – SA3046-XX R00 – Button key

## XL TITANIUM

HARD DRIVE – V3.00.

SECURITY KEY – SA3052-XX

## XL TITANIUM2

HARD DRIVE – V4.00.

SECURITY KEY – SA3052-XX

**Note:** XL Gold CD R00: Will not work with Button security key (SA3039-XX R00), square key only (SA3033-XX).

**Note:** XL Titanium2: Final release of software for the XL Series.

## Memory Requirements:

8 Meg of SIMM (8192K) required for R3 Series & XL5000

32 Meg of SIMM (32768K) required for XL6000, XL Gold, XL Platinum, XL Double Platinum & XL Titanium(2).

## XL SOFTWARE

### R3 SERIES

- R3A CD - Pix Mix Babes lockup, requires R3C CD.

### XL5000

- R5B CD - Checkers lockup, requires R5I CD.

### XL6000

- “Invalid Key Error”: CMOS time and date need to be set to current time period.
- “Insufficient Disk Space”/“0 Files Copied”/“Bad Command or Filename”: Indicate a conflict with EPROM at U12.
- R02 CD – If the disc loads and responds slowly, the R07 CD is required.
- Game reboots at files copied: Try reseating the SIMMs. 32768K memory is required.

### XL GOLD & PLATINUM CD VERSION

- XL Gold CD-R00: If screen calibration drifts and then locks up, the R01 CD is required.
- Logo picture remains on the screen without changing: Insufficient memory. 32768K memory is required.
- Logo picture comes up and changes to an “Operating system not found” 512K Video Dram is required at U38. (DeAmeritek motherboards)

### XL GOLD & XL PLATINUM HD VERSION

- If the game logo appears on the screen, then resets:  
There is insufficient memory. 32768K memory is needed and the year must be set to 2001 or later.
- “Invalid Key Error”: Insufficient memory. 32768K memory is needed.
- “No Sound Driver Loaded: Insufficient memory. 32768K memory is needed.
- “Invalid Drive Specifications” (with a D:\ prompt flashing). Jumper JP1 (EPROM ENABLE) must be removed.
- If “Free Play” appears on the screen and cannot be changed through setup options, the date and time must be set to present time period.

### XL PLATINUM CD & HD VERSION

- HD version: A calibration problem requires CDs PA0022-01 & PA0022-02, V2.00
- CD version: A calibration problem requires CDs Rev B PG3004-02 V1.02.

**Note:** Newer versions of Platinum software have a three-point calibration.

Once the two-point calibration is complete:

1. Press the icon reading LOW COLOR CALIBRATION; a single dot will appear on the screen,
2. Touch the dot for two seconds and remove your finger. The screen will return to the normal menu.

\*\*Current versions will have the third dot come up automatically after the second dot.

## CMOS CONFIGURATIONS

### N-Force (ION)

- 1 - Plug a keyboard into the **purple port** connector (PS2)
- 2 - Power the game on. Press **DEL** to enter **SETUP**.
- 3 - Arrow over and down to **Load Optimized Defaults**.
- 4 - Press **ENTER**. Press **Y** for “**Yes**”.
- 5 - Press **F10**, Press **Y** for Yes.
- 6 - The system should reboot. Unplug the keyboard.

### ECS (FORCE)

- 1 - Plug a keyboard into the **purple port** connector (PS2)
- 2 - Power the game on. Press **DEL** to enter **SETUP**.
- 3 - Arrow over and down to **Load Fail-Safe Defaults**
- 4 - Press **Enter**, select **Y** for Yes
- 5 - Arrow over and down to **Load Optimized Defaults**.
- 6 - Press **ENTER**. Press **Y** for “**Yes**”.
- 7 - Press **ENTER**. Press **F10** and then press **ENTER**.
- 8 - The system will reboot. Unplug the keyboard.

### Mitsubishi / ItoX (MAXX)

- 1 - Plug in a keyboard (PS2) and turn on the game.
- 2 - Press **F2** to enter **Phoenix BIOS Setup Utility**.
- 3 - Press **F9** to load **Setup Default**.
- 4 - At Setup confirmation, press **ENTER** with YES shaded.
- 5 - Press **F10**, save and exit.
- 6 - Press **ENTER** for confirmation with **YES** shaded, then unplug the keyboard.
- 7 - The system should reboot.

### Telco 486 (XL) & Unicorn 586 (MAXX) (Telco 586)

- 1 - Plug a keyboard into **J4** (Telco XL) or **purple port** (Unicorn Maxx). (PS2)
- 2 - Press the **DELETE** button to enter Setup.
- 3 - Select “**LOAD SETUP DEFAULTS**” Press **Enter**.
- 4 - Press **Y** for Yes, then press **Enter**
- 5 - Select “**STANDARD CMOS SETUP**”
- 6 - Press **Enter**. The settings should be as follows:
  - Date: Set to current date.
  - Time: Set to approximate time.
  - Hard Disks: All “TYPE” and “MODE” fields set to “AUTO”
  - Drive A: 1.44M, 3.5 in
  - Drive B: None
  - Video: EGA/VGA
  - Halt On: All, But Keyboard
- 7 - After all settings have been changed or verified, press **Esc**.

### 8a through 8d for boot sequence for Unicorn 586 only, for Telco 486 continue to Line 9

- 8a - Arrow down to “**BIOS feature setup**” Press Enter.
- 8b - Arrow down to “**boot sequence**”
- 8c - Use the **Page Up** or **Page Down** keys to change the sequence to: **CD-ROM, C, A**
- 8d - After all settings have been changed or verified, press **Esc**.
  - 9 - Press the **F10** key. Press **Y** for Yes.
- 10 - Press **Enter** and unplug the keyboard. The system should reboot.

### DeAmertek (XL): Has 2” fan in upper right hand corner.

- 1 - Plug keyboard into J4. Power On. Press **DEL** to enter SETUP.
- 2 - Use DOWN ARROW to “**Load ROM Default Values.**”
- 3 - Press **ENTER**. **NOTICE** message will appear on screen.
- 4 - Press **ENTER**. Use UP ARROW to “System setup.”
- 5 - Press **ENTER**. Use DOWN ARROW to **Diskette Drive A**.
- 6 - Press PAGE UP until “**Not installed**” appears.
- 7 - Press **ESC**. Main Menu appears on screen
- 8 - Use DOWN ARROW to highlight **Boot Options**.
- 9 - Press **ENTER**. Press PAGE UP to **C: ONLY**.
- 10 - Use DOWN ARROW to “**Post Errors**” PAGE UP to **Disabled**, then press **ESC**.
- 11 - Use DOWN ARROW to **Green PC** feature, then press ENTER.
- 12 - A customized gray box appears. PAGE UP to **Disabled**
- 13 - Press ESC Press F10, **WARNING!** Appears on screen. Press **Y** for Yes
- 14 - Press **ENTER**. Unplug keyboard from J4. System should reboot.

## **HARD DRIVES:**

### **Drive designations**

Ion \ Force \ Maxx \ XL

Hard drives: (HD) HDD

Drive C:\ Hard drive

XL - CD based only

Drive F:\ - CD-ROM drive.

Drive C:\ - U12 EPROM located on the I/O board.

## **HARD DRIVE ERROR MESSAGES**

Ion \ Force \ Maxx \ XL

- Disc Boot Failure: Indicates a defective hard drive.
- Operating System Not Found: Check the IDE ribbon cable from HD to motherboard. May indicate a defective HD.
- Critical Error, Abort, Retry, Fail: Indicates a defective hard drive or IDE ribbon cable.
- CRC Error Reading Drive C: Indicates a defective hard drive.
- Smart Failure: Indicates a defective hard drive.
- Bad Command or File Name: This may indicate a corrupted hard drive or motherboard. (Corrupt CMOS)

**Note:** Reloading the CDs/DVD may help correct the "BAD COMMAND or FILE NAME" error.

**Note:** Performing a CMOS configuration may also help correct a "BAD COMMAND or FILE NAME" error.

Ion:

- **Kernel panic VFS unable to mount FS 30.5:** Hard drive is connected to the Secondary IDE port.  
Needs to be connect Primary IDE port (light blue connector)

Force:

- **Interrupt 18H Check cable...:** Indicates a defective hard drive.

Ion: 2006 \ Force: 2003 \ 2004 \ 2005 \ 2006 & Maxx: Ruby \ Sapphire \ Jade \ Crown

- **Error 64:** Indicates a defective hard drive.
- **Error 67:** Indicates a defective hard drive.
- **Error 97:** Indicates a defective hard drive.
- **Error 94:** Indicates that the hard drive is connected to the Secondary IDE.
  - **Hard drive** must be connected the Primary IDE connector.
  - **CD/DVD-ROM drive** must be connected to Secondary IDE port.
- **Checking for bad blocks:** Possible corrupted hard drive. Try reloading the CDs.
- **Mounting other file system – failed:** Possible corrupted hard drive. Try reloading the CDs.

Hard Drive checksum test:

1. Turn power off.
2. Turn on Dipswitch DS2 - 8.
3. Power the game up.
4. The test will run for about 20-25 minutes.
5. If the test passed, the game will go into attract mode.
6. If the test failed, a "Checksum Error" message displays. This indicates a defective hard drive.

**Note:** A hard drive can still be defective, even if it passes the hard drive test.

XL: Invalid drive specifications: Possible problem with the IDE ribbon cable or CD-ROM drive.

## DOWNLOADING

### CD \ DVD:

- Make sure the CD\DVD is installed correctly, with the logo facing up.
- Check the CD\DVD for scratches or defects. Try a different set of CDs or DVD.
- Make sure the CDs are of the same revision.

### CD \ DVD-ROM:

- Jumper setting on the back of the CD\DVD-ROM drive must be set to MASTER (MA).
- Try a different CD\DVD-ROM drive to determine whether the existing CD-ROM drive is a problem or defective.
- **Error 13.9:** This error can indicate either defective set CD\DVDs or CD\DVD-ROM drive.
- Rebooting after download: The game will reboot after Linux\* software is loaded.

A questionable CD\DVD-ROM drive may have a problem by not reading the disc correctly. Try a newer drive.

**Note:** The age and condition of the CD\DVD-ROM drive are factors in downloading problems.

### CMOS CONFIGURATION:

- A problem with CMOS configuration can cause the motherboard to not recognize the CD-ROM drive.  
See CMOS Configuration Settings page.

### CONNECTION PROBLEMS:

- Make sure that the Centronics cable is connected correctly and pushed all the way down in place.  
Try another Centronics cable.
- IDE ribbon cable: Use IDE ribbon cable connected between the CD\DVD-ROM drive and the motherboard.  
Use the fan power connector to power the CD-ROM drive.  
The IDE ribbon cable going to the motherboard will go to the Secondary IDE connector on the CD\DVD-ROM drive.
- **CD-ROM error:** CD\DVD-ROM must be to Secondary IDE port.
  - Hard drive IDE ribbon cable must be connected to the Primary IDE Port (top port) on the motherboard.
  - CD\DVD-ROM drive IDE ribbon cable connects to Secondary IDE port (bottom port) on the motherboard.

### SOFTWARE:

- **CD1:** Loads to 51% and detects a hard drive error. Defective hard drive.
- **CD2:** Loads to about 82-87% before asking again for CD2 to be installed, This indicates that CD2 is defective.
- **CD3:** Is installed and ejects, asking for CD4: This indicates that CD3 is defective. Being there is no CD4.

**Note:** CD3 problem is only seen with Linux OS: 2004(5)/2003(5) & Ruby(2)/Sapphire(2)

2002 \ Emerald: 2 CD set

2003 \ Ruby: 2 CD set.

2004 \ Sapphire: 3 CD set.

2005 \ Jade: 4 CD set.

2006 \ 2007 single DVD.

Crown Edition: 3 CD set

### TOUCHSCREEN CONTROLLER – Microtouch controllers.

- The game displays the **MERIT SOFTWARE LICENSE AGREEMENT** on the screen without the “**Accept**” and “**not-accept**” icons being displayed.
  - 1 - Make sure the green LED on controller is lit. Orange wire to +12 vdc and gray wire to black wire (ground)
  - 2 - Touchscreen controller drivers may not match the software version being loaded.

**Note:** A Microtouch controller acquired through a non-Merit distributor may not have the same drivers as a Microtouch controller that was used in dedicated Merit games. The controller may have been replaced in the past.



## **LOCKUPS \ REBOOTS**

### All games

**Fans:** Make sure fans are clean and clear of dirt. On the CPU chip, power supply (if any) and hood, etc.

### Ion:

- Screen displays "Sub D disconnect" or No Input signal, check connector" message. Try reseating DIMM.
- Game lockups displaying "Merit Industries, Inc" at power up: Disconnect Centronics IDE cable at the motherboard. A possible defective Centronics cable inside the game can produce this problem.

**Memory:** Physical memory: Ion (DDR) \ Force & Maxx (DIMMs) \ XL (SIMMs)

- Defective DIMMs or SIMMs can cause games to lock up or reset and can also create graphics problems.
- Continuous repeating tone or tones may indicate a hardware memory problem with the DIMM. Try reseating or replacing the DIMM(s)
- Check and reseat SIMMs. Check for good or bad SIMMs by reading the memory numbers.

**Memory corruption:** Corrupted Software or missing files on the hard drive.

- Corrupted software on a hard drive can also be responsible for games rebooting and locking up.
- Clearing memory or reloading the CDs may help correct the problem. *Refer to memory clear section.*
- Some software versions had problems with lockups and reboots. *Refer to Tech2006 for software revision.*

### Hardware:

- Motherboard: A defective motherboard can be responsible for lockups and reboots.
- Hard drive: Problems with age and physical condition are factors. 24/7 operation.
- Power supply can create problems with lockups and reboots.

**Note:** If the fan in the power supply has failed, it is recommended that the power supply be replaced.

**Voltage:** Location / wall outlet / grounding.

- Heavy devices: A refrigeration unit (beer box) or compressors on the same line will cause lockups.
- Poor line voltage: The location may have a problem with poor wall voltage or grounding with electrical system.
- Reversed polarity at the wall outlet will effect game operation.
- Improper wall voltage or low voltage can be a factor.
- Neon Lights: Can produce disruptive line noise.
- Proper grounding is necessary for normal game and touchscreen operation. Proper grounding is also a safety issue.

**Monitors & Touchscreens:** Games with CRTs.

- Touchscreen cable should not be positioned under or on top of the yoke of the monitor.
- Touchscreen controller cable should not be positioned near the flyback transformer.

### Maxx \ XL

Contact connection:

- Dirty edge pins on the I/O and riser boards.
- Dirty edge pins on SIMMs or DIMMs.
- IDE ribbon cable: Dirty pins or defective due to age.

**XL** – (Causeway Error 9 & 11)

- Check for scratched or faulty CDs.
- CD-ROM drive: Old and defective.
- Defective IDE ribbon cable.
- Dirty edge pins on the I/O and riser boards.
- Dirty edge pins or defective SIMMs.
- No sound driver loaded: Possible defective motherboard assembly or insufficient memory.
- Memory corruption: Try a two-button memory clear.
- Defective motherboard and/or I/O board.

**Note:** A causeway error does not refer to any direct problem, but only indicates that a problem exists.

## **MEMORY CLEAR PROCEDURE**

Two button clear – All games.

Turn off the game.

Locate the SETUP & CALIBRATE buttons.

Press and hold the SETUP & CALIBRATE buttons while turning the game back on.

After about 20 seconds, the message “**TWO BUTTON CLEAR DETECTED, PLEASE RELEASE THE BUTTONS**”

Should appear on the screen. Upon seeing this message, release the buttons. The game will continue to bootup.

Keyboard clear – DOS operating system. Hard drive based games only.

XL: Gold, Platinum & Titanium(2) / Maxx: 1<sup>st</sup> release, 2K+, Diamond(2) & Emerald(2) / Force 2002(5)

Turn off the game.

Plug in the keyboard into the top port PS2 or purple PS2 port and then power the game up.

Allow the game to boot up into the first menu screen.

Press the **ESC** key. The screen should display **C: MERIT2\**

Type in **cd..** And press **ENTER**. **C:\ prompt** will appear.

Type in **del nvram.dat** and press **ENTER**. **C:\ prompt** will reappear.

Turn off the game and unplug the keyboard, then turn the game back on.

**Note:** Bad Command or File name appears, the **del nvram.dat** was not typed correctly.

DIPswitches – Linux operating system: 2003, 2004, 2005, 2006 \ Ruby, Sapphire, Jade, Crown.

DS4 & 7: Complete memory clear. Resets the game to the factory defaults. Clears ALL memory on hard drive.

DS6: Hardware configuration: Identifies system hardware and reconfigures the device drivers for the motherboard.

2005/2006/Jade/Crown:

DS1: Four selection icons: DS6, DS8, DS4 & 7, DS5 & 7.

Reloading software – CDs or DVD

Reloading the CDs will reformat the hard drive and restore the software to an original default level.

**SECURITY KEY:** Copyright protection device.

Invalid key error:

All Games:

- Check time & date in CMOS configuration.
- Check for a defective security key.

Ion:

- Missing or wrong security key: Error message: ERROR 1: INVALID KEY FOR VERSION...
- Defective OSD Board or I/O board.

Ion & Force:

- LEDs: Check LEDs on the I/O board: All four LEDs must be lit in order for the I/O board to function correctly.
- USB cable: Make sure USB cable is seated all the way at the I/O board and ECS motherboard.
- Check for a defective I/O board, or if the I/O board was replaced, check the jumpers.  
Refer to FORCE Series on Tech notes for I/O board (USB port)
- Corrupted hard drive: Reload software CDs.
- Corrupted CMOS configuration: Reconfigure motherboard CMOS configuration. *Check CMOS configuration section.*
- DIPswitch DS4 & 7: Memory clear. Corrupted hard drive. *Check Memory Clear section / DIPswitches.*

**Note:** Force game boots up to “**Maxx loading**” then displays **invalid key**. To test whether the I/O board is being recognized by the motherboard, turn the game off and put DIPswitch 6 (DS6) to the ON position. Then turn the game back on. If “**Maxx loading**” followed by **invalid key**, this would indicate that the motherboard is not recognizing the I/O board. Check and reseat the USB cable. Check for the four red LEDs on the I/O board. Check power connector on the I/O board. Or corrupted CMOS configuration on the motherboard.

**Note:** Force2003/2004/2005 software requires all hardware to be correct. Hard drive, controller, I/O board, etc.

Maxx (Unicorn)

- Audio board: Check to see if the audio board is seated or installed correctly.  
The socket on the Unicorn MB is larger than audio board connector.

XL / Maxx

- Check for dirty edge pins on I/O & riser boards.
- Check for a defective I/O board or riser board.

XL

- Check memory. If there is under 32 Meg (32768K) for a 6000, Gold, Platinum, or Titanium game,

**Note:** Invalid key error occurs when attempting a download of newer software, chances are that the new security key was installed first and the attempted download either failed or did not occur.

This would indicate a loading problem. Refer to DOWNLOADING page of TECH2006 for possible solution.

## TOUCHSCREENS: (TS)

### Microtouch:

- SMT-3 Controller: XL & Maxx games (white box)
- SMT-4 Controller: Force games only. (black box)
- USB Controller: Ion only (open face)

### Function

- Green LED on controller lit is at half brightness and goes to full brightness when the screen is touched.
- Overlay functions on capacitance.

**Note:** Green LED is flashing from 1 to 5 times, self-diagnostics detected an error or the controller may be defective.

**Note:** Green LED is not lit: Check +12 vdc. The touchscreen and/or controller may be defective.

### ELO Graphics: (XL & early Blue Maxx countertop games only)

- Controller is in a silver box. Requires +5.0 vdc.
- Overlay functions on SAW/Sound Acoustic Waves. Sound waves are reflected across the screen.
- Normal Operation: The green LED will flash constantly; LED lights steadily when the screen is touched.
- Touchscreen overlay has ridges around the edge that must be kept clean for the screen to respond correctly.
- Touchscreen cable is on left side of CRT.

### Green LED is steadily lit:

- Check for objects that may be attached to the screen and make sure the bezel is dry and not stuck to the screen
- Check the grooves etched around the outside edge of the screen for dirt.
- The controller may be defective.

### Calibration:

1. Locate and press the **CALIBRATE** button.
2. Touch the first dot or center of 4 arrows that appears on the screen for 2 seconds, and then pull your finger away.
3. Touch the second dot or center of 4 arrows that appears on the screen for 2 seconds, and then pull your finger away.
4. During the touchscreen test, the cursor should follow your finger anywhere you touch the screen.

### CALIBRATION \ LOCKUP PROBLEMS:

#### Touchscreen:

- Problem with the entire screen: Recalibrate the touchscreen. If calibration is still off, replace the touchscreen.
- Problem in one area of screen: check for scratches or nicks on the screen: Replace touchscreen
- Loses calibration: Check the ground pin on the line cord. Replace AC line cord. Check AC wall outlet.
- Calibration off: DS6 to reload the device drivers. For Linux operating system.

#### Grounding:

- Improper grounding will affect the operation of the touchscreen.
- Double-touch problem: Taking two or three cards away as in Tri Towers & 11-UP after only one touch. Make sure the A/C plug and wall outlets are properly grounded.

#### CRT \ Monitor:

- The touchscreen cable should not be positioned under or on top of the yoke of the monitor.
- The touchscreen controller cable should not be positioned near the flyback transformer.

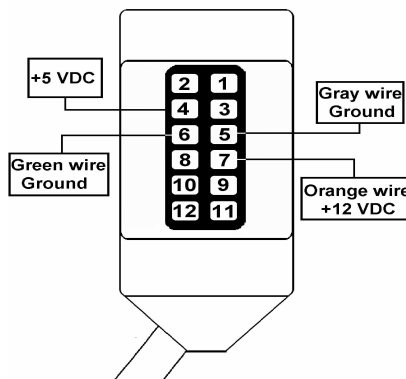
**Note:** If the cable is not properly installed, touchscreen response will be 180 degrees out of sync.

**Note:** Microwave ovens and neon lights can and will interfere with the calibration of the touchscreen and should not be within 6 feet or 2 meters of the game.

Removal: Waxed dental floss.

Cleaning: Use only soft a cloth with water or denatured alcohol.

TOUCHSCREEN OVERLAY CONNECTOR



**MONITORS:**

Eygo CGA

Type 2, 3, 4, 5, 6

No power up:

R103 & R104 change to 75K ohm - 1 watt each

IC1 - TDA8380 & Q101 - 2SC4742

No vertical deflection:

Related capacitors to be replaced:

C412 - 10 uf / 25 vdc      C403 - 2.2 uf / 16 vdc

C413 - 4.7 uf / 160 vdc    C404 - 1 uf / 50 vdc

C414 - 1 uf / 25 vdc      C407 - 100 uf / 16 vdc

C501 - 10 uf / 25 vdc    C408 - 8.2 uf / 50 vdc

C806 - 100 uf / 100 vdc

**Note:** If C806 is missing, leave it empty.

Wells Gardner CGA

Type 13, 34.

No power up:

C011 - From: 22 uf / 35 vdc  
                    22 uf / 160 vdc

C015 - From: 100 uf / 35 vdc  
                    To: 100 uf / 160 vdc

Ducksan CGA

Type 19, 20

No power up:

C804 - From: 1 uf / 50 vdc  
                    To: 10 uf / 50 vdc

Ducksan VGA

Type 55

No power up:

C804 - From: 1 uf / 50 vdc  
                    To: 10 uf / 50 vdc

Ducksan VGA

Type 52

Dim tube: Replace tube

Video Display - 1-800-241-5005  
M34KUK-35X03, tube replacement.

Telco VGA

Type 51

Color problem:

Replace IC 601: color amplifier

Replace FR102: 2.2 ohm 1 watt resistor

Video problem:

Dim screen, dark screen, lack of color, washed out color, over driven color, or no color

Possible solution:

Replace video amplifier chip on the neck board of the monitor:

LM1203, GL1160, DBL2056 & NTE7081.

Service numbers

Tatung - 800-827-2850

Telco - 800-678-3526

Wells Gardner - 800-336-6630

Eygo TUV CGA

Type 10, 11, 12.

No power up:

Replace Q502 - 2SC4769-2

Replace C814 - 100 uf 35 vdc