TECH

CLASSIC

XL HARDWARE

Motherboard: DeAmertek 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 (high scores, 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)

XL SOFTWARE

XL 1st Release — Memory SIMM: 8 Meg (8192K)
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 — Memory SIMM: 8 Meg (8192K)
CD: R5A, R5B, R5D, R5E, R5G, R5H, R5I.
Security Key: SA3008-XX R006 – Square Key
EPROM: SA3014-03 U12-R3 / U12-R4.

XL6000 — Memory SIMM: 32 Meg (32768K)
CD: R02, R04, R05, R07
Security Key: SA3019-XX R00 – Square key
EPROM: SA3014-04 U12-R00

XL GOLD — Memory SIMM: 32 Meg (32768K)
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 — Memory SIMM: 32 Meg (32768K)
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 — Memory SIMM: 32 meg (32768K)
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), only works with square key (SA3033-XX).

XL SOFTWARE

- "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.
- Game reboots at files copied: Try reseating the SIMMs. 32768K memory is required.
- 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.
- Game logo appears on the screen, then reboots: 32768K memory required.
- "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.
- "Free Play" is displayed and cannot be changed through SETUP, date & time must be set to present time period.

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.

MAXX SOFTWARE

MAXX – First release
Version: R00, R01 – R06, V3.01 - V3.07
Security Key: SA3022-XX, SA3031-XX

2K
Version: V4.00 - V4.01
Security Key: SA3035-XX

2K PLUS
Version: V5.00 - V5.01
Security Key: SA3035-XX

DIAMOND
Version: V6.01 - V6.05
Security Key: SA3042-XX

DIAMOND2
Version: V7.00 - V7.02
Security Key: SA3042-XX

EMERALD
Version: V8.01 - V8.06
Security Key: SA3048-XX

EMERALD2
Version: V9.01
Security Key: SA3048-XX

RUBY
Version: V10.00 - V10.09
Security Key: SA3056-XX

RUBY2
Version: V11.00 - V11.05
Security Key: SA3056-XX

SAPPHIRE
Version: V12.00 - V12.10
Security Key: SA3065-XX

SAPPHIRE2
Version: V13.00 - V13.11
Security Key: SA3065-XX

JADE
Version: V14.00 - V14.22
Security Key: SA3079-XX

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 1st release, 2K(+), Diamond(2) & Emerald(2).
64 Meg of DIMM (64512K) required Maxx Ruby(2) & Sapphire(2) Jade(2) & Crown.

CMOS CONFIGURATIONS

Mitsubishi / Itox (MAXX)

1 - Plug in a keyboard 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).
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 inch
- 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 download 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.

MOTHERBOARDS

Beeping Motherboard: Maxx: Mitsubishi \ Itox \ Unicorn
Symptom: Motherboard is displaying a series of beeps (one to several beeps repeatedly)
This may indicate a DIMM problem. Possible missing, defective or poor edge pins connections on the DIMMs.
Possible solutions:

- Reseat the DIMM.
- Replace the DIMM.
- Clean edge pins on the DIMM.

Note: Possible defective motherboard, this is determined when reseating or replacing the DIMM.

Motherboard:
Symptom: Game will power up (example fans, LEDs, etc. are functioning) but no video being displayed.
Possible solution: Try reseating the DDR DIMM (memory).
Note: N-Force (ECS) motherboard does not beep, if the DDR DIMM (memory) is defective or not seated correctly.
Dead Motherboard: XL: Telco\DeAmertek & Maxx – Itox \ Mitsubishi
Symptom: No power up, but power supply is functioning. (Fans are functioning.)
Possible poor contact connection between I/O & riser boards and the IDE ribbon cable.
Procedure: Turn the off game. Reseat memory hardware (SIMMs or DIMMs). Then remove the I/O & riser boards and disconnect the IDE ribbon cables from the motherboard. Turn the game back on and what happens?

- **Result A:** Game still does not power up with I/O & riser boards and IDE ribbon cables disconnected. Then this would indicate a possible defective motherboard.
- **Result B:** Game powers up and displays the error message **Disc boot failure** or **Operating system not found**. Turn the game off. Clean the edge pins on the I/O & riser boards and re-install and reconnect IDE ribbon cables to the motherboard and turn the game back on.
- **Result C:** Game powers up and displays the error message **Disc boot failure** or **Operating system not found**. Next, re-install the I/O & riser boards and reconnect the IDE ribbon cables. Then turn the game back on and if there is still dark or blank screen, then this may indicate a possible defective I/O-riser boards or IDE ribbon a cable that is loading down the motherboard.

Note: It is possible that the hard drive or CD-ROM drive will also be responsible loading down the motherboard.

Unicorn Motherboard: Used in dedicated Maxx games and XL to Maxx conversion kits.
Symptom: Dead Unicorn motherboard: will not power up due to lost of CMOS configuration.
Procedure: Turn the game off. Plug keyboard into the Purple PS2 connector port.
Locate J3 pins (located near the Primary & Secondary IDE ports on the motherboard).
Move the jumper at J3 pins 3 & 4 down to pins 4 & 5. (This changes the motherboard power supply setting from ATX to AT)
Once the jumper is moved: press and hold the **<Del>** key while turning the game on. This forces the Unicorn motherboard to the CMOS configuration setup screen. (Use TECH2007 notes for the Unicorn CMOS configuration) Once the CMOS configuration is completed, turn the game off. Move the jumper at J3 pins 4 & 5 back to pins 3 & 4. Then turn the game back on.
Note: If the game does not power up after moving J3 pins to 4 & 5, the Unicorn MB or power supply may be defective.

COIN JAM ERROR

Problem: Coin jam error message.
<u>XL & Maxx:</u>
<u>Possible causes:</u>

- Dirty edge pins on I/O and riser boards
- Defective DBA
- Defective coin mech
- Defective I/O board

<u>Maxx: Slim\Select games:</u>
<u>Possible causes:</u>

- Defective DBA
- Defective opto board
- Defective I/O board

MEMORY CLEAR PROCEDURE

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

Keyboard clear – DOS operating system. Hard drive based games only.
XL: Gold, Platinum & Titanium(2) / Maxx: 1st 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: If **Bad Command or File name** appears, the **del nvram.dat** was not typed correctly.

LOCKUPS

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.

SECURITY KEY

Copyright protection device.

Invalid key error:
All Games:

- Check for a defective security key.
- Invalid Key for version: Software does not match key version.
- Corrupted hard drive: Reload software CDs.
- Corrupted CMOS configuration: Reconfigure motherboard CMOS configuration and check time & date.

Maxx (Unicorn)

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

XL / Maxx

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

Note: If an Invalid Key error occurs when attempting to download newer software, chances are that the new security key was installed first and the attempted download failed. This would indicate a loading problem. Refer to DOWNLOADING page of TECH2007 for possible solution.

TOUCHSCREENS

Microtouch:

- SMT-3 Controller: XL & Maxx games (white box)

Function

- Green LED on controller is lit 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: DIPswitch 6 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 a soft cloth with water or denatured alcohol.

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 defection:
Related capacitors to be replaced:
C412 - 10 uf / 25 vdc
C413 - 4.7 uf / 160 vdc
C414 - 1 uf / 25 vdc
C501 - 10 uf / 25 vdc
C806 - 100 uf / 100 vdc
C403 - 2.2 uf / 16 vdc
C404 - 1 uf / 50 vdc
C407 - 100 uf / 16 vdc
C408 - 8.2 uf / 50 vdc
Note: If C806 is missing, leave it empty.

Eygo TUV CGA
Type 10, 11, 12.
No power up:
Replace Q502 - 2SC4769-2
Replace C814 - 100 uf 35 vdc

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