icebox flipscreen

FS03 Service Manual

beyond™

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1   Safety Precautions

When performing maintenance or repair on the iCEBOX II™ FlipScreen, please observe these basic precautions to reduce the risk of personal injury or equipment damage.

Before servicing the iCEBOX II

- Read and understand all iCEBOX II instructions.
- Follow all warnings and cautions on the product and in these operating instructions.
- Disconnect the iCEBOX II from AC power.

Warnings and Cautions

The following examples demonstrate warning and caution statements found within this document. Read and follow all warnings and cautions.

Warning:	Warning statements warn of hazards or unsafe practices that could result in serious personal injury or death.

Caution:	Caution statements warn of hazards or unsafe practices that could result in minor personal injury or damage to the product.

Fire and Shock Hazard

Before returning an iCEBOX II to the owner, perform the following safety checks:

1. Inspect each lead dress to make certain that the leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the unit.

2. Inspect all protective devices such as nonmetallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacitor networks and mechanical insulators.

3. Perform a leakage current test (see Figure 1).

Warning: **Risk of shock.** Do not use an isolation transformer during this test.

a. Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI C101.1, Leakage Current for Appliances), and Underwriters Laboratories (UL Publication UL1410, 59.7).
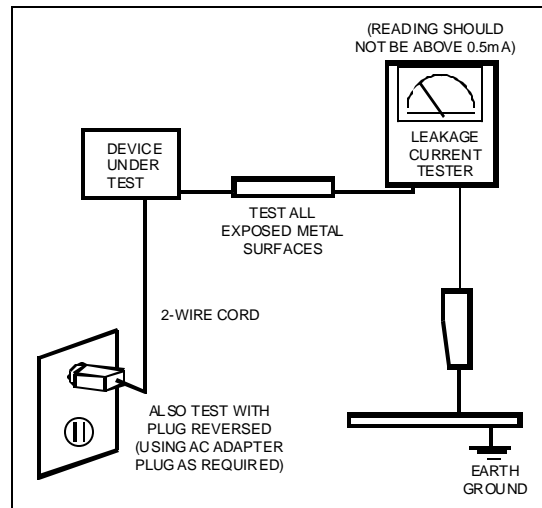
FIGURE 1. Leakage current test circuit

b. With the unit completely reassembled, plug the AC line cord directly into a 120V AC outlet. With the unit's AC switch first in the ON position and then OFF, measure the current between a known earth ground (metal water pipe, conduit, etc.) and all exposed metal parts, including: metal cabinets, screwheads and control shafts. The current measured should not exceed 0.5 milliamp.

Product Safety Notices

Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection. The protection they give may not be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by ⚠ on schematics and parts lists. A substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire and/or other hazards. Product safety is under review continuously and new instructions are issued whenever appropriate.

Product Damage Precautions (for Touch Screen)

1. Do not place heavy objects on the touch screen.
2. The transparency of the touch screen sensor is critical. Handle the product with gloves to avoid fingerprints or smudges.
3. Blow contaminants from the surface with a filtered de-ionized air source before cleaning with a soft, lint-free cloth dampened with isopropyl alcohol. Ensure there are no contaminants in the cloth.
4. The touch screen should be handled with care as any dropping or dumping may break the glass.

Servicing Precautions

Warning: **Risk of personal injury.** Read the "Safety Precautions" section of this manual before performing any service on the iCEBOX II. If unforeseen circumstances create conflict between the servicing precautions and safety precautions, always follow the safety precautions.

Warning: **Risk of explosion.** An electrolytic capacitor installed with the wrong polarity might explode.

1. Servicing precautions are printed on the cabinet, and should be followed closely.
2. Always unplug the unit's AC power cord from the AC power source before attempting to: (a) remove or reinstall any component or assembly, (b) disconnect PCB plugs or connectors, (c) connect all test components in parallel with an electrolytic capacitor.
3. Some components are raised above the printed circuit board for safety. An insulation tube or tape is sometimes used. The internal wiring is sometimes clamped to prevent contact with thermally hot components. Reinstall all such elements to their original position.
4. After servicing, always check that the screws, components and wiring have been correctly reinstalled. Make sure that the area around the serviced part has not been damaged.
5. Check the insulation between the blades of the AC plug and accessible conductive parts (examples: metal panels, input terminals and earphone jacks).
6. Insulation Checking Procedure: Disconnect the power cord from the AC source and turn the power switch ON. Connect an insulation resistance meter (500 V) to the blades of the AC plug.

   The insulation resistance between each blade of the AC plug and accessible conductive parts (see above) should be greater than 1 megohm.

7. Never defeat any of the +B voltage interlocks. Do not apply AC power to the unit (or any of its assemblies) unless all solid-state heat sinks are correctly installed.

8. Always connect a test instrument's ground lead to the instrument chassis ground before connecting the positive lead; always remove the instrument's ground lead last.

ESD Precautions

Some semiconductor (solid state) devices can be easily damaged by static electricity. Such components are commonly called Electrostatically Sensitive Devices (ESDs). Examples of typical ESD devices are integrated circuits and some field-effect transistors. The following techniques will reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground. Alternatively, wear a discharging wrist-strap device. To avoid a shock hazard, be sure to remove the wrist strap before applying power to the unit.

2. After removing an ESD-equipped assembly, place it on a conductive surface such as aluminum foil to prevent accumulation of an electrostatic charge.

3. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ESDs.

4. Use only a grounded-tip soldering iron to solder or desolder ESDs.

5. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ESDs.

6. Do not remove a replacement ESD from its protective package until you are ready to install it. Most replacement ESDs are packaged with leads that are electrically shorted together by conductive foam, aluminum foil or other conductive materials.

7. Immediately before removing the protective material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.

Warning: **Risk of shock.** Be sure no power is applied to the chassis or circuit and observe all other safety precautions.

8. Minimize body motions when handling unpackaged replacement ESDs. Motions such as brushing clothes together, or lifting your foot from a carpeted floor can generate enough static electricity to damage an ESD.

9. ⚠ Indicates ESDs in the schematic diagrams in the section "Schematics" later in this manual.

Specifications

TABLE 1. iCEBOX II FlipScreen Basic Specifications:

Size (Unit W x D x H)	(Including speakers) 23-5/8 in x 11-7/8 in x 3-7/8 in (600 mm x 300 mm x 97 mm)
Weight	32 pounds (14.50 kg)
Environment	Operating Temperature 0°C to 40°C (32°F to 113°F) Storage Temperature –20°C to 45°C (–4°F to 113°F)
Enclosure	Steel with plastic front panel
Power source	110Vac, 60Hz or 230Vac, 50Hz
Display	800 x 600 12.1-inch TFT-LCD with back light, touch screen
Speakers	Audio system designed by Redrock Acoustics® Two detachable speakers Speaker channel; L/R bass, mid-range, and treble Power; 10 watts per channel; Resistance 4 ohms
Switch controls	On/Off, Channel +/-, Volume +/-, Play/Pause, Eject, Options Mute
Video inputs/outputs	Coaxial CATV Antenna In (F-type jack), Stereo Audio In/Out (RCA type), Composite Video In (CVBS), DVD, Video CD 2.0 and iCEBOX Turbo 2.0
Telephone connection	In/Out RJ-11
Internet connection	56K, V.90 Modem, RJ45 10/100 Base T ethernet connection
Other connections	Dual USB port, security unlock, intercom audio out, COM port
DVD player	DVD, audio, VCD
TV channels	125 channels, cable ready
FM radio frequency	87.50Mhz to 108.00Mhz

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2 Circuit Description

Controller Board Circuit Description

CPU Geode 3200 U26

The Geode SC 3200 processor (U26) controls all the functions for the iCE-BOX II Flipscreen unit. All other devices are slaves to the Geode SC 3200. On power up, the Geode 3200 boots from flash memory (U16) and from disk on chip (U7), and loads the code into SDRAM (U8, U9, U10, U11). The code is then executed from the SDRAM.

The SC3200 has two crystal controlled clocks. A 27MHz oscillator (X1) is used to generate the main system clock.The PCI bus clock runs at 33Mhz and memory bus clock runs at 89Mhz. The internal CPU clock runs at 266Mhz. A 32.768kHz crystal (Y1) generates the Real Time Clock (RTC). The RTC is used for keeping track of elapsed time since power-on as well as internal CPU timing.

The SC3200 has a 64-bit data bus that can be sized to interface to either 8, 16, 32 or 64 bit devices.

The following tables contain descriptions for the Geode 3200 functional pins used in the iCEBOX II

TABLE 2. SC3200 Main Memory pins

BA[1:0]	Bank Address Bits. These bits are used to select a component bank within the SDRAM
CASA, RASA, WEA	The SC3200 is encoded to support the different SDRAM commands. CASA (Column Address Strobe), RASA (Row Address Strobe) and WEA (Write Enable) are used with CS[1:0]
CS[1:0]	Chip Selects. These bits are used to select the module bank within system memory. Each chip select corresponds to a specific module bank. If CS is high, the bank(s) do not responds to RAS, CAS, and WEA until the bank is selected again.
CKEA	Clock Enabled. These signals are used to enter suspend/power-down mode.
DQM[7:0]	Data Mask Control Bits. During memory read cycles, these outputs control whether SDRAM output buffers are driven on the MD bus or not. All DQM signals are asserted during read cycles. During memory write cycles, these outputs control whether or not MD data will be written into SDRAM.
MA[12:0]	Memory Address Bus. These are multiplexed row/column address lines driven to the system memory, supporting 256MB SDRAM.

TABLE 2. SC3200 Main Memory pins

SDCLK[3:0]	SDRAM Clocks. SDRAM uses these clocks to sample all control, address and data lines. To ensure Suspend mode functions correctly, SDCLK3 and SDCLK1 are used with CS1 while SDCLK2 and SDCLK0 are used together with CS0
SDCLK_IN	SDRAM Clock Input. The SC3200 samples the memory read data on this clock, which works in conjunction with the SDCLK_OUT signal.
SDCLK_OUT	SDRAM Clock Output. This output routes back to SDCLK_IN.
MD[63:0]	Memory Data Bus. These are data bus lines driven to/from system memory.
X271, X270	Crystal. Connected directly to a 27MHz crystal, this clock input is used for video circuits. Some internal clocks are derived from this clock.
X321, X320	Crystal. Connected directly to a 32.768kHz crystal, this clock input is required even if the internal RTC is not being used. Some internal clocks are derived from this clock.

TABLE 3. SC3200 PCI and Power Management pins

A[23:0]	Address Lines.
D[15:0]	Data Bus.
FRAME	Frame Cycle. FRAME is driven by the current master to indicate the beginning and duration of an access.
DEVSEL	Device Select. Indicates that the driving device has decoded its address as the target of the current access.
LOCK	Lock operation. Indicates an atomic operation that may require multiple transactions to complete.
PERR	Parity Error. Reports data parity errors during all PCI transactions except a Special Cycle.
SERR	System Error. SERR can be asserted by any agent for reporting errors other than PCI parity so that the PCI central agent notifies the processor.
PCIREST	PCI and System Reset. The reset signal for the PCI bus and system.
GNT[1:0]	Grant Lines. Indicates to the requesting master that it has been granted access to the bus.
REQ[1:0]	Request Lines. Indicates to the arbiter that an agent requires the bus.
INTA, INTB, INTC	PCI Interrupts. These interrupts can be mapped to IRQs of the internal 8259 interrupt controllers using PCI Interrupt Steering Register 1 and 2.
PCICLK	PCI Clock. Provides timing for all transactions on the PCI Bus.
PCICLK0, PCICLK1	PCI Clock Outputs. Both clock outputs provide clock drives for the system at 33MHz.
ROMCS	ROM or Flash ROM Chip Select.

TABLE 3. SC3200 PCI and Power Management pins

DOCCS	DiskOnChip or NAND Flash Chip Select.
IOCS[1:0]	I/O Chip Selects.
IOR	I/O Read. Active on any read cycle.
IOW	I/O Write. Active on any write cycle.
PWRBTN	Power Button. Input used by the power management logic to monitor external system events initiated from the system on/off button or switch.
PWUREQ	Power Wake Up Request Lines.
LED	Sleeping/Working Indicator.
ONCTL	On/ Off Control. This signal indicates to the main power supply that power should be turned on.
POR	Power On Reset. This is the system reset signal generated from the power supply to indicate that the system should be reset.

TABLE 4. SC3200 TFT, SC3200 IDE

TFT[17:0]	Digital RGB Data to TFT.
TFTDE	TFT Data Enable. This can be used as a blank signal to external CRT DACs.
TouchScreen_TX	A receive signal from the touch screen.
TouchScreen_RX	A send signal to the touch screeen.
Tuner_On	Tuner On Control.
PC_BEEP	PC Beep. Legacy PC/AT speaker output.
SYNC	Serial Bus Synchronization. This bit is asserted to synchronize the transfer of data between the SC3200 and the AC97 codec.
AC97_RST	Codec Reset.
BIT_CLK	Audio Bit Clock. The serial bit clock from the codec.
SDATA_IN	Serial Data Input. This input receives serial data from the primary codec.
SDATA_OUT	Serial Data Output. This output transmits audio serial data to the codec.
LAD[3:0]	LPC Address Data. Multiplexed command, address, bidirectional data, and cycle status.
LDRQ	LPC DMA Request. Encoded DMA request for LPC I/F.
HSYNC	Horizontal Sync.
VSYNC	Vertical Sync.
VPD[8:0]	Video Port Data. The data is input from the CCIR video decoder.
FP_VDD_ON	TFT Power Control. Used to enable power to the Flat Panel display, with power sequencing timing.

ISA Bus Buffer 74LCX245 U37, U38, U40, U41

U37, U38, U40, U41 are ISA bus buffers used for communication between the boot loader (U16) and DiskOnChip (U7) with CPU (U26).

IDE Bus Buffer SN74CBTD3861DBR U3, U4

U3 and U4 are IDE bus buffers used as the bus switch for the DVD drive.

Clock Buffer ICS551 U32

U32 is a PCI bus buffer for those devices attached to the PCI bus. It is connected to Super I/O (CLKPCISIO), MPEG2 decoder (CLKPOMPEG) and Ethernet Controller (CLKPOENET) in the controller board circuit.

PCI Reset Driver 74LCX08MTC U31

This is a low voltage quad 2 input AND Gate with 5V inputs.

CPU Flash Memory SST39VF020 U16

The Flash Memory stores the boot loader sequence for initial boot up. The IC is 256 Kbytes with an 8-bit data bus for a total capacity of 2046 Kbits of storage.

DiskOnChip U7

This it used to store WinCE image, persistant registry and application data. It has a 32MB, non volatile memory that requires 3.3V of power supply.

SDRAM for Wince Image U8, U9, U10, U11

The memory for storing program data and code are made from 4 SRDAM chips. Each chip consists of 4 banks. Each bank contains a 2Mbit SDRAM memory chips, each with a 16-bit data bus. Together the four chips make a memory data bus that is 64-bits wide.

EEPROM ATC24LC16 U35

U35 is used to store the unit serial number and the results of the Power-On Self Tests. It is 16Kbits (2048 x 8) inside.

EEPROM ATC24LC02 U29

U29 provides the 2Kbits (256 x 8) EEPROM required for storing the region code for DVD operation. The EEPROM to the EM8400 is using a serial I2C bus. The operation of this bus performs using the logic in EM8400 processor.

Regulator for VCORE LM1117MPX U17

U17 acts as a permanent voltage supply for VCORE standby for the main processor (U26).

Regulator for CPU VCORE LM2636M U44

U44 is a programmable synchronous buck switch regulator controller used as the main processor (U26) VCORE voltage supply.

Voltage Monitor LP3470 U45

U45 is used to generate power on reset pulse and monitors input voltage.

Fast Ultra Low Dropout Linear Regulator LP3961 U34

As MPEG2 decoder requires a 2.5V voltage, a linear regulator (U34) is required to do the conversion for incoming voltage of 3V to 2.5V.

EPLD ISPLSI2032VE-110LT44 U46

U46 is a programmable logic device with functions and codes for the front buttons (eject, play/pause, option, mute, volume up/down, channel up/down, power on/off, reset), backlit controller and power management.

SGRAM for MPEG2 Decoder K4G323222A-QC/K U15

U15 provides the 32Mbit (512K x 32bits x 2banks) SGRAM used as the memory for the MPEG2 decoder. The MPEG2 decoder uses the memory for digital signal processing.

DVD/MPEG2 Audio/video Decoder EM8400 U25

Sigma Designs EM8400 is an integrated single-chip for MPEG and DVD decoding and playback. The crystal Y5 through U24 generates the 27MHz clock used by the DVD Decoder. Because EM8400 requires 2.5V, U34 converts the 3.3V provided by C335 and C359 to an output voltage of 2.5V.

3 Terminal Adjustable Regulator LM317 U23

U23 is used to supply 9V for the stereo decoder chip (U20). It converts from external 12V voltage to 9V consumed by the stereo decoder.

Power Amp LM386M-1 U28

U28 is an audio power amplifier for an external intercom speaker powered by the 5V power supply. It contains 1 amplifier with a Gain of 26dB.

AC97 Codec LM4548 U13

U13 is an audio codec with sample rate conversion and National 3D sound. It is powered by 5V power supply. AC97 Codec converts digital data to analog audio and acts as a mixer for the tuner, DVD and line in. It provides true line level output with volume control in addition to standard line out.

Op-Amp National Semi LMC660CM U6

This op-amp has +/-5V power supplies. It increases the sound level and also acts as a voltage boost.

Op-Amp National Semi NE5532AD8 U5

This op-amp has 12V power supplies. It buffers the bass signals and provides a Gain of 2 to the signal.

Audio Processor LM4832M U14

U14 is a digitally controlled tone and volume circuit with stereo audio power amplifiers, microphone preamp stage and national 3D sound. It digitally controls volumes, bass and treble.

Power Amp TDA8569Q U2

U2 is an audio power amplifier to drive external speakers powered by the 12V power supply. It contains 4 amplifiers in BTL configuration with a Gain of 26dB.

Volt Converter LTC1046 U12

U12 is a +5V to -5V converter. The amplifier (U6) requires the -5V conversion.

Intercom Audio QS4A101Q U27

The switching of the external intercom "door call" speaker between talk and listen is done with quad analog switch U27. Three of the four switches are in parallel to drive the external speaker to reduce the resistance for the signal going to the speaker. The fourth switch is used to connect the audio processor (U14) output to the speaker amplifier (U28).

Super I/O PC87360 U48

U48 extends the functionality of the serial port of Geode 3200. Since it supports a Low Pin Count (LPC) interface, it can support more serial port dependent devices. Currently it supports CPLD, LED control, door push detection and the IR receiver.

Video Decoder SAA7114H U22

The TV composite video is converted to CCIR-656 8-bit digital video by the SAA7114H decoder. The chip contains a video multiplexer to select either the tuner composite video, the external video source or the MPEG decoder (U25). The decoder I2C interface is controlled by the Geode 3200 I2C bus. Crystal Y3 generates 24.576 MHz video decoder clock. The digital and analog sections of the chip each have their own isolated 3.3V supply.

MPEG DAC WM8725 U18

U18 decodes the MPEG digital signal to analog audio output. It requires a 5V power supply.

Digital Thermometer/Thermostat Dallas DS1621 U21

U21 is a digital thermometer/thermostat that the Geode 3200 uses to control fan operation via the I2C bus. When the temperature reaches 55º C the fan comes on. Below 50º C, the fan turns off.

Audio Clock Synthesizer MK2703STR U24

U24 generates a clock sequence for the MPEG2 decoder, requiring a 3.3V power supply. The audio clock output on Pin 5 is dependent on the audio format of the disk being played and can be any of: 8.192MHz, 11.2896MHz, 12.288MHz, 24.576MHz for sampling rates of 32kHz, 44.1kHz, 48kHz and 96kHz, respectively.

TV Tuner Phillips FM1236MK2 U50

The TV tuner (U50) takes in the antenna/CATV and outputs composite video and the TV audio. The tuner is powered by 5V. The tuner I2C interface is controlled by the Geode 3200 through the 5V I2C bus. It supports NTSC broadcasting and a radio frequency range from 87.50MHz to 108MHz.

 Note: There is a replacement part for PAL decoding.

PAL Stereo Recorder TDA9874AH U59

U59 is the stereo decoder for PAL broadcasting. It is driven and controlled by I2C bus operation.

Stereo Decoder TDA9851T U20

U20 is the stereo decoder for NTSC broadcasting. It is driven and controlled by I2C.

Infrared Receiver Sensor TSOP1238 U52

U52 is an Infrared Remote Control Receiver module used to receive the remote and keyboard IR transmission data.

CMOS 74LCX32M U36

U36 is used as an RJ45 LED driver.

Ethernet Controller DP83815 U42

U42 is a single chip IEEE 8O2.3 Ethernet controller. It is initialized and controlled by the CPU directly via the PCI bus, which implements a 16-bit PCI bus for communication. Y6 generates the 25MHz clock which drives the Ethernet controller and acts as the main clock.

Serial EEPROM 93C46, U33

U33 is used to store the ethernet MAC address programmed or accessed via I2C bus and SC32OO.

Transceiver DS14C535 U53, U54

U53 and U54 are COM serial port drivers which convert devices at TTL level to RS232 port levels.

Touch Screen Controller ADS7845E U49

U49 converts the XY signal received by the touch screen from the user's finger touch to a digital signal, which it then transmits to microcontroller U51.

Serial EEPROM 93C46 U55

U55 stores touch screen linearization constants.

Microcontroller P87C52 U51

U51 receives the digital signal from the touch screen controller. It then calculates the X and Y values from the signal received and sends these values to the CPU for processing via serial bus.

Modem Board Circuit Description

Modem Controller Conexant CX88168-11 with CX20463 Smart DAA U47,U2

The chipset consists of CX88168,U47 and CX20463,U2. Y7 generates the 28.224MHz clock as the main clock that drives the modem controller. The Smart DAA system-powered DAA operates reliably without drawing

power from the line. It also provides local extension status monitoring without going off-hook. This chipset (U47) along with the associated external component (U2) provide the necessary line monitoring, filtering, isolation, protection, and signal conversion functions for the connection of high speed analog modem devices to the telephone network.

IR Receiver Module TSOP 1238 U3

U3 is an Infrared Remote Control Receiver module that receives the remote and keyboard IR transmission data.

Serial EEPROM 24C02 U43

U29 provides the serial read/write non-volatile memory for storing modem customization and configuration data.

High Side Switch U1

U1 is a Dual Port USB Power Switch for over-current protection.

LVDS Daughter Board Circuit Description

Low Voltage Differential Receiver DS90CF364AMTD U1

U1 is a LVDS receiver that converts the low voltage differential LCD signals from the controller body to TTL signals for the LCD panel.

Backlight Board Circuit Description

Backlight circuitry consists of a low pass filter driving a self-oscillating high voltage DC-to-DC converter. The backlight circuitry is powered by the system 12V DC supply. The DC-to-DC converter (L3, Q5, C16 and R10) operates at **kHz, generating 1200V at startup to fire the cold cathode fluorescent lamps in the LCD panel, and thereafter generating 650V.

The low-pass filter (L4, D6, C14 and switches Q3 and Q4) is driven by a 64kHz pulse width modulated (PWM) signal from the controller board. When this PWM signal is at 50% duty cycle, the backlight is at full intensity. As the PWM signal is reduced below 50% duty cycle, the voltage at C14 is reduced, which reduces the intensity of the backlight. When the PWM signal is at 0% duty cycle (off), the backlight is fully off.

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3   Disassembly / Reassembly

This section of the service manual describes the disassembly and reassembly for the iCEBOX II FlipScreen and its subassemblies.

Warning: **Risk of electrical shock.** High voltages may be present. Disconnect the unit from the main power before beginning any disassembly procedure.

Before beginning:

· Disconnect the iCEBOX II from main power.
· Begin with the screen closed flat.
· Verify how many connections are routed to the back panel, which may include TV coaxial cable, telephone/modem, ethernet, audio and video, security, and 2 USB connections on bottom panel. (Refer to Figure 4.)

Required tools:

· Small phillips screwdriver (or power screwdriver with phillips bit and torque set to 1)
· Flat screwdriver
· 7/32 (5.5mm) socket wrench
· 13mm socket wrench
· Long-nosed pliers

To remove the iCEBOX II from the installation site

1. At the bottom rear of the unit, remove the cable tray (3 push fasteners, Figure 2).
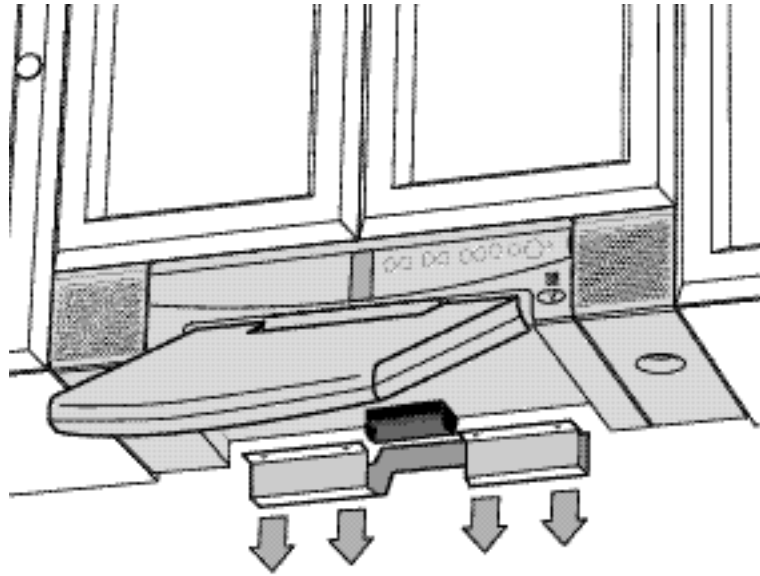
FIGURE 2. Removing the cable tray

2. Using either your fingers or a flat screwdriver, reach behind the back panel to unscrew and loosen the 2 steel lock pins (Figure 3). This will allow the unit to slide forward on the mounting bracket.
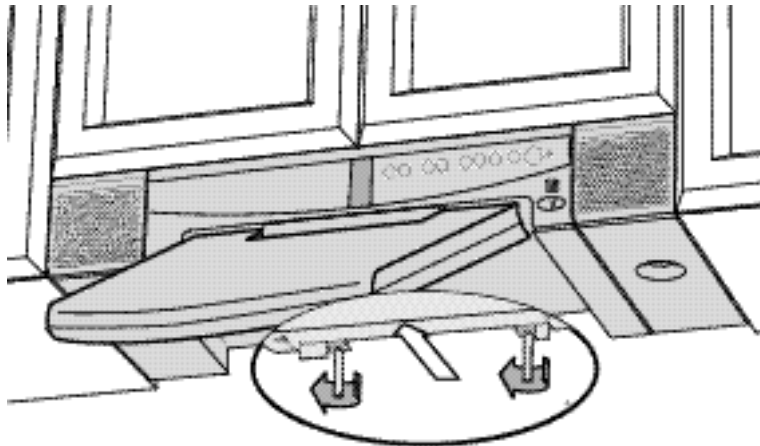
FIGURE 3. Loosening the lock pins

3. Slide the unit slightly forward. While supporting the chassis with one hand, reach behind the unit and unplug all connections to the rear panel. Refer to Figure 4 for locations of rear panel connectors.

Note: It is not necessary to disconnect the iCEBOX II's integral speakers from the rear panel.
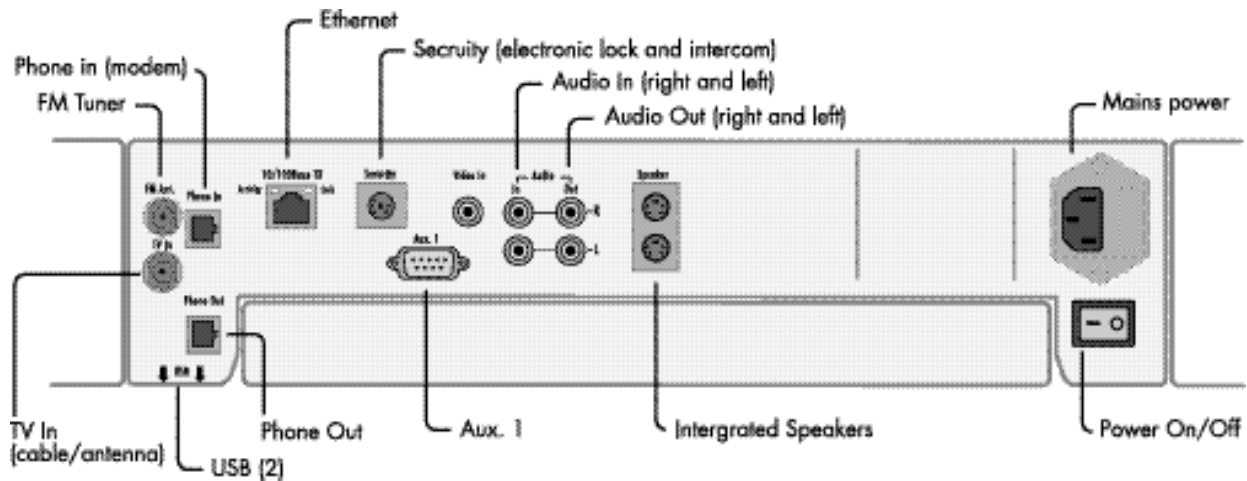
FIGURE 4. Flipscreen iCEBOX II rear panel connections

Disassembly

Note: Refer to Figure 5 for an exploded view of the main chassis assembly.

Warning: **Risk of electrical shock.** High voltages may be present. Disconnect the unit from the main power before beginning any disassembly procedure.

Before beginning disassembly, remove the iCEBOX II from the installation site.

Note: While completing many of the following instructions, you may find it helpful to refer to the diagrams in Chapter 5, *Mechanical Views and Parts Lists* beginning on page 55.

To remove the chassis top panel

1. Remove the integral speakers from the chassis by unplugging the cables from the back panel then removing two phillips screws on each of the top and bottom sides of each speaker.
2. Remove 14 phillips screws from the chassis top panel.
3. Remove 3 phillips screws each from the top edges of the left and right side panels.
4. Lift the chassis top panel away.
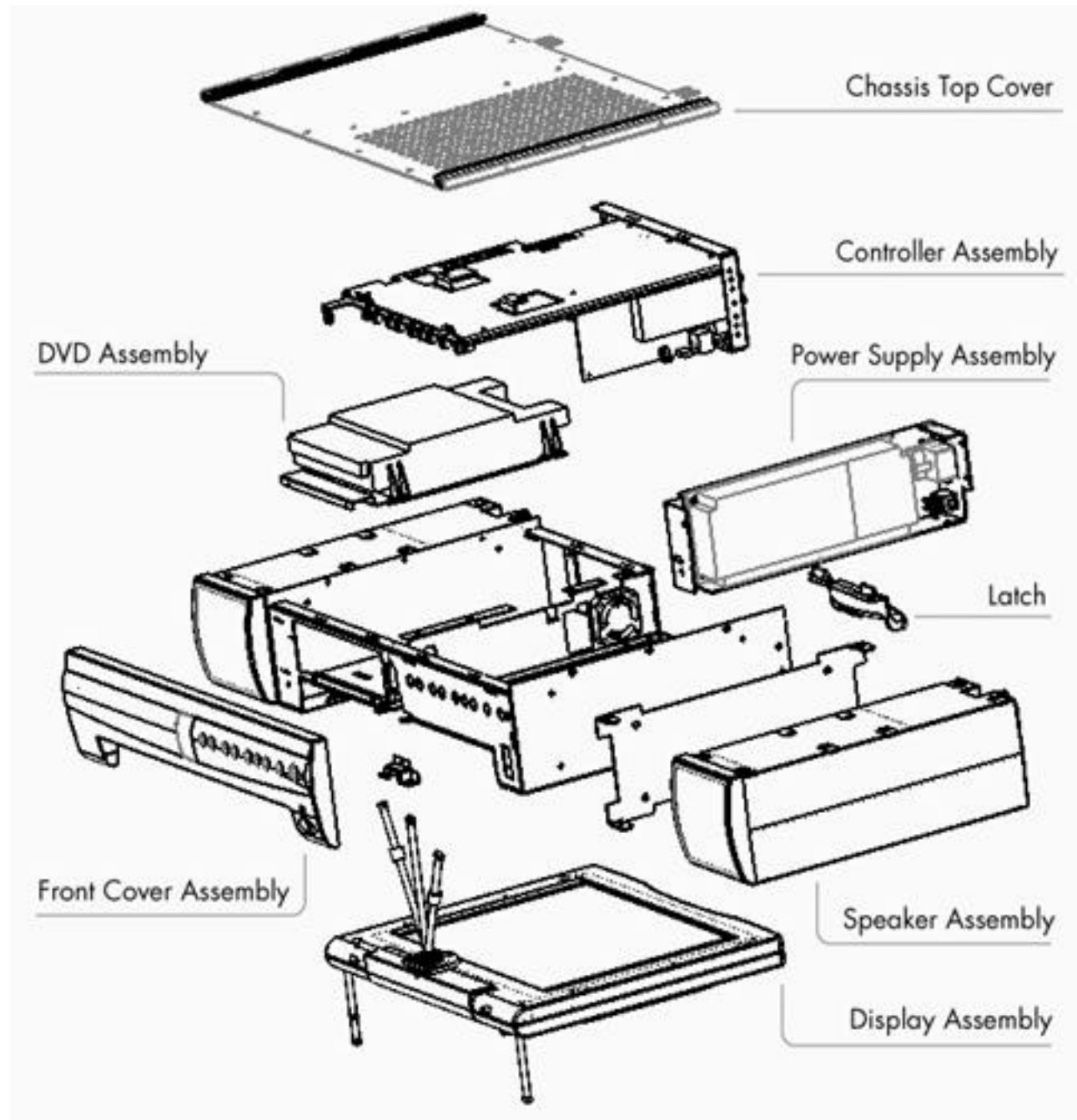
FIGURE 5. Main chassis, exploded view

To remove the controller board, modem board and rear panel assembly

1. Remove the chassis top panel (see *To remove the chassis top panel* on page 19).

2. Disconnect all the connectors on the back side of the Controller Board, accessible through the sheet metal bracket:

   a. J12 ATAPI connector (40-pin, grey ribbon cable) to DVD drive.

   b. J3 (red, black, yellow wires) from power supply.

   c. J2, DVD power cable

3. Remove the following phillips screws:

   a. On the back panel of the controller assembly, 2 phillips screws to the right (when viewed from the rear) of the speaker connector

   b. When viewing the unit from the rear, 2 phillips screws from edge of the left side

   c. 2 phillips screws from the unit bottom, near the USB connectors

   d. 3 phillips screws from the unit bottom along the back edge

4. Follow this step carefully to lift the controller assembly out of the chassis so as to avoid breaking off the IR sensor, which hangs down from the right edge of the controller board under the front edge of the chassis.

   a. Tilt the rear panel and rear edge of the controller assembly slowly up and then forward about 1/4 inch to clear the heatsink from the power amp. Continue to slowly move the assembly forward until the tabs at the front edge of the assembly just clear the front edge of the chassis. Then carefully lift the assembly further up and for-ward until it is free of the chassis.

   b. Now tilt the controller assembly to the right, so that it is almost at a 90 degree angle to the chassis.

5. On the component side of the Controller PCB assembly disconnect:

   a. J9 to the microphone

   b. J10 to the fan, by pulling out the small tab to release

   c. J27 (Controller PCB connector) to LVDS daughter card in display assembly

   d. J 24 (Controller PCB connector) to touchscreen in display assembly

   e. CN1 to Backlight Inverter PCB

6. Set the Controller PCB assembly aside from the chassis.

To disassemble the controller assembly

1. Remove the rear panel:

   a. Disconnect the serial cable (J1) from the PCB

   b. Remove 4 phillips screws from the rear panel

   c. Using a 13mm socket, remove the coaxial cable connector nuts

   d. Pull the back panel away from the controller assembly

 Note: Take care not to lose the washers on the coaxial cable connectors

2. Remove the modem board:

   a. Remove the phillips screw in the bottom right corner of the modem board

   b. Disconnect the edge connector (J22) by gently rocking the modem board back and forth while pulling up

3. Remove the sheet metal bracket from the back of the Controller PCB by removing the 7 remaining phillips screws. (Take care not to lose the small metal brackets that three of the screws hold in place.)

To remove the front panel and front panel buttons

1. Gently set the unit upright with the front panel on top and the rear panel on the bottom. Lift the touch screen all the way up so that you can access the small rectangular hole in the upper left of the chassis underside.

2. Open the disc tray door by inserting a 1/16-inch x 2-inch rod (1.58mm x 50.8mm), or similar object, into the slot in the underside of the chassis below the DVD drive, and sliding the latch to the left (looking at the front of the circuit) about 1/2 inch,

3. Close the touch screen and set the unit back horizontally (with the touch screen on the bottom).

4. Remove the DVD tray cover by gently lifting the tray cover while pushing down against the DVD tray. Gently push the CD/DVD tray back in.

5. Remove the IR window cover by gently inserting a thin screwdriver blade into the slot on the left side and carefully prying it loose.

6. Remove the 1 phillips screw that was hidden behind the CD/DVD tray door, now visible to the left of the tray.

7. Remove 1 phillips screw that was previously hidden by the IR window, now visible above the sensor (see Figure 6).

8. Carefully separate the front panel from the chassis by pivoting the left side out about 1/2 inch, then reaching inside the chassis on the right and pushing the tab toward the right side wall. After the front panel pops loose from the chassis, pull the microphone cable through the front hole and lift the front panel away. Notice that the front panel buttons are a single connected piece that sits loosely in the holes of the front panel. Take care not to misplace the small LED light tube.
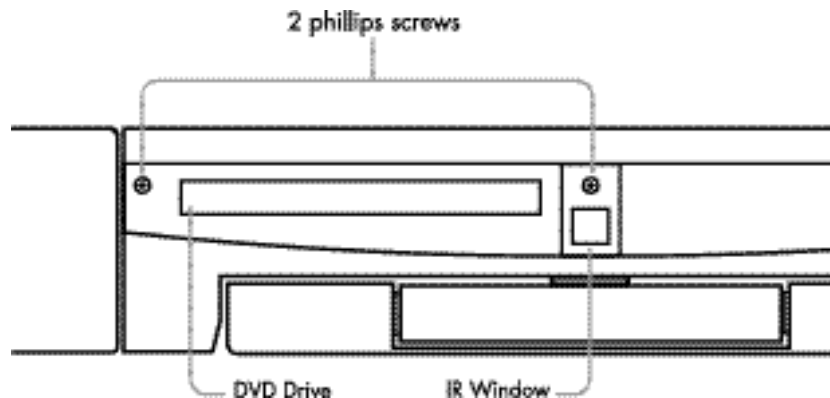
FIGURE 6. Removal of front panel

To swap the power supply

Note: Before removing the power supply, you may want to have some metal tape (either copper or aluminum) on hand, in order to retape the power supply cables during reassembly.

1. Remove 2 phillips screws next to the rear panel.
2. Remove 4 screws that hold on the left speaker bracket and remove the bracket.
3. Peel off the metal tape holding the power supply cables in place along the front of the chassis, above the CD.DVD player.
4. Pressing firmly, slide the power supply through the opening in the rear panel.

To remove the DVD drive

1. With long-nosed pliers, remove 2 nuts on the back of the DVD mount plate.
2. Remove the small washers underneath the nuts.
3. Moving the DVD and DVD mount plate together, lift both toward the left side of the chassis, up a little, and then out of the chassis.
4. Remove the DVD from the mount plate by removing the 4 screws.

To remove the display assembly

1. Remove the chassis top panel, front panel and the controller/modem/ rear panel assembly (see previous instructions).
2. Remove 3 phillips screws from the top of the pivot shield (Figure 7). You will need to rotate the touchscreen left and right in order to access all three screws.
3. Remove the grounding clamps from the LVDS cable and backlight. These clamps are fastened inside the chassis, next to the CD/DVD player compartment.
4. Rotate the display to allow access to the 3 phillips screws on the bottom of the flange (Figure 7). Remove the 3 phillips screws.
5. While sliding the display away from the mounting flanges, thread dis- play assembly cables through the opening in the front panel.

Pivot Shield
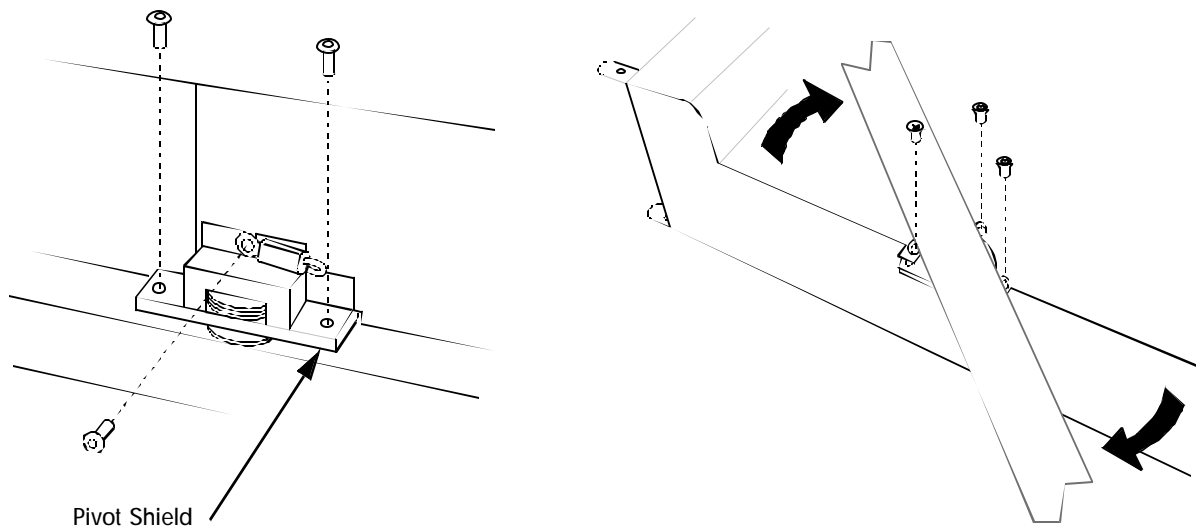
FIGURE 7. Removing the display assembly

LVDS Board

Bracket (4x)

Backlight Board

LCD Panel

Touch Panel

Front Cover
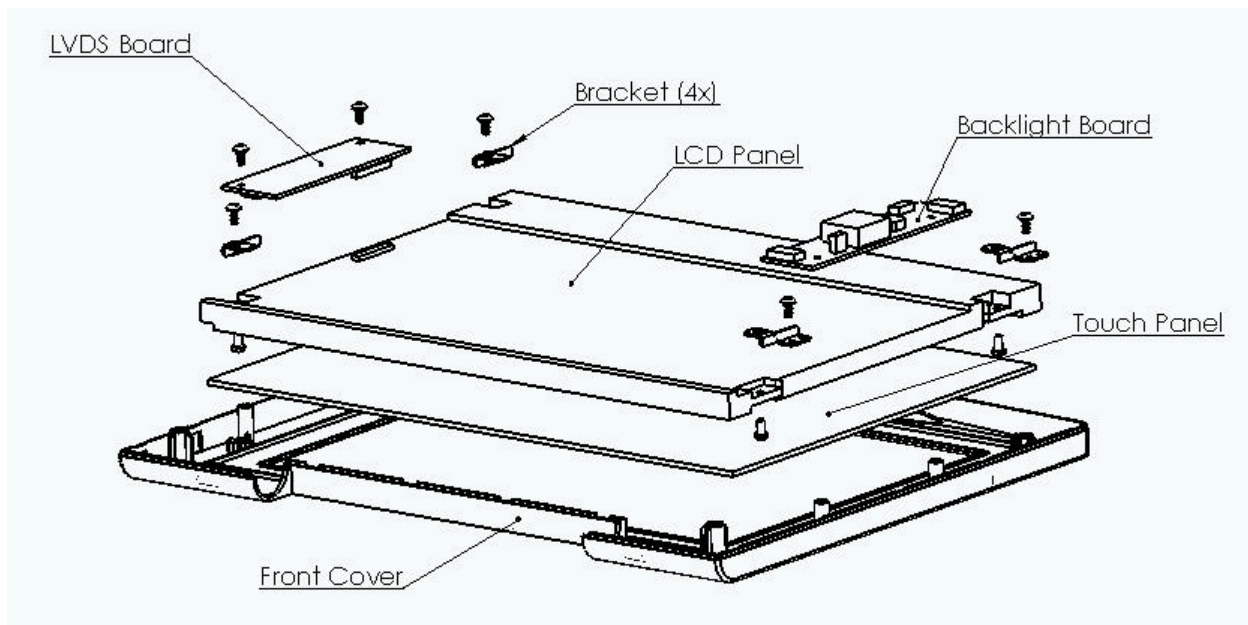
FIGURE 8. Display assembly, front view
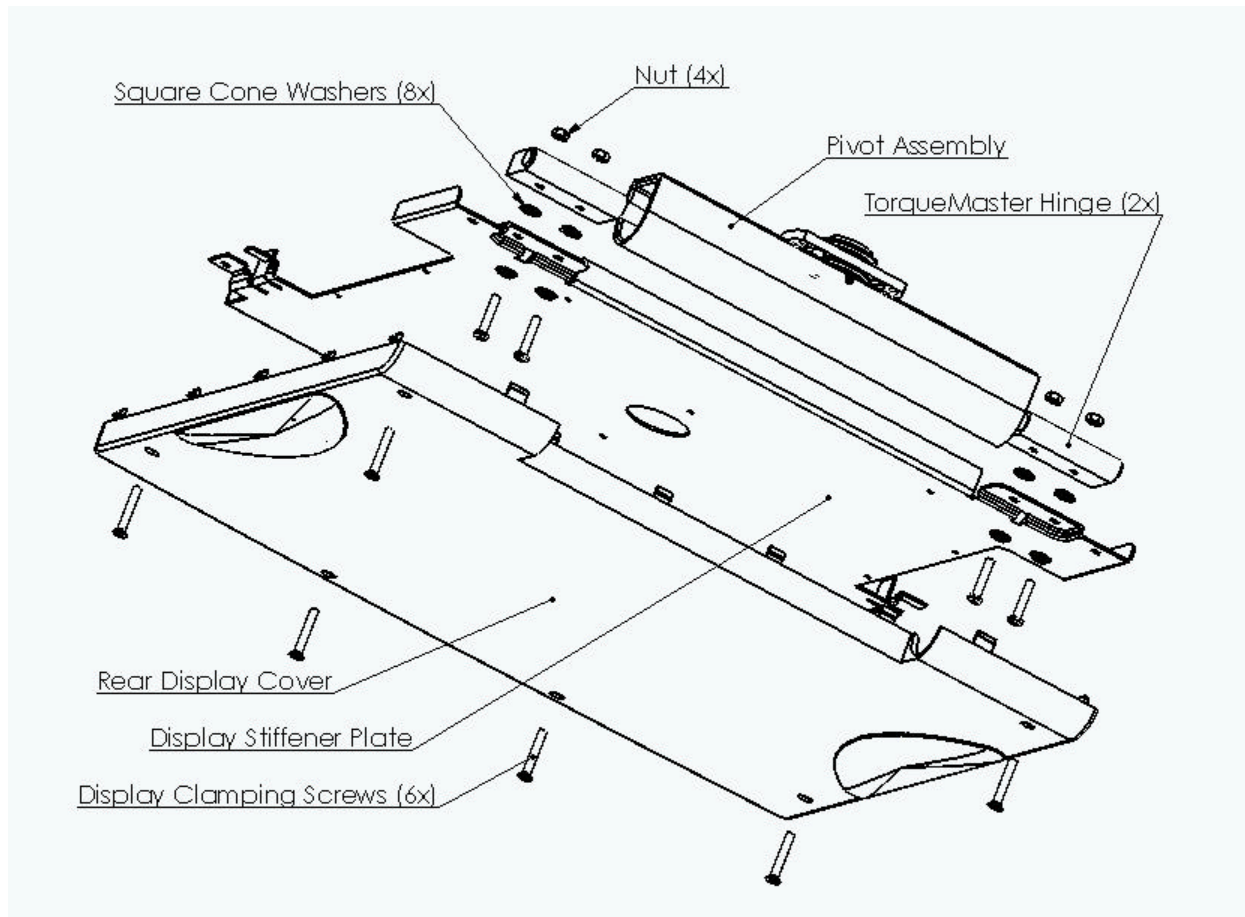
FIGURE 9. Display assembly, rear view

To separate the front and back of the display chassis

1. Optionally, remove the display assembly from the chassis (see previous instructions).

Note: It is possible to separate the covers of the display assembly while the screen is still attached to the chassis.

2. Lay the display assembly screen down on a soft cloth.
3. On the back of the display remove 6 phillips screws.
4. Release the locking tabs along the right edge by pressing in on the right side of the back cover near the bottom (away from the pivot screw) and lifting up on the bottom edge of the cover. Do the same on the left. Do not force the front and back apart.

Note: During reassembly, take care not to pinch wires.

To remove the LCD screen

1. Remove the 4 phillips screws fastening the sheet metal stiffener plate. Take care not to lose the washers and nuts attached to the screws.

2. Remove the sheet metal plate by rotating it upward, being careful not to catch any cables.

3. Remove 2 screws from the LVDS board and disconnect from LCD panel.

4. Take note of the placement of the grounding gaskets and the routing of the cables to the bosses, for reassembly.

5. Disconnect the touch screen cable. This is the thinner of the two black cables that feed into the display assembly from the main box.

6. Remove 2 screws from the backlight board and remove the board.

7. Remove 4 phillips screws from each corner of the screen.

8. Lift aside the LVDS Board.

9. Remove the screen from the display chassis.

Note: When reassembling, be sure the LVDS pin connections on the board are firmly seated. If not properly seated, the touch screen will display all white once the unit is powered back on.

To replace the pivot assembly

1. After removing the display assembly, separating the covers and removing the LCD screen, you can simply remove and replace the pivot assembly. This is necessary if the pivot assembly allows the touch screen to turn a full 360 degrees.

Reassembly

To reassemble the iCEBOX II, reverse the order of disassembly, with one exception. The controller assembly must be refastened in this sequence: side, bottom, top cover, and back.

To reinstall the iCEBOX II FlipScreen

1. Install the iCEBOX II onto the mounting bracket taking care to align the guide rails on the bracket with the rails on top of the iCEBOX II. Slide the unit about half way back onto the rails.

2. Plug the cables into the appropriate connectors. (Refer back to Figure 4 on page 19.)

3. Making sure no cables will be pinched or crimped, slide the iCEBOX II all the way onto the mounting bracket. Ensure that the slotted tabs at the top rear of the unit are fully engaged with the lock pins.

4. Replace the cable tray, gathering the cables behind the unit into the tray.

5. When installation is complete, the face of the unit should be flush with or slightly recessed from the face of the cabinets.

icebox flipscreen

4   Updating the Operating System

The iCEBOX II FlipScreen operating system can be updated using an iCEBOX-supplied CD.

Updating the Operating System from CD

To update the unit's operating system with the iCEBOX-supplied CD, the unit must be functioning normally.

Note: To update the operating system when the unit is not functioning properly, see the instructions *To update the operating system* on page 53, in the *Troubleshooting* chapter.

During the update proceure:

- Do not attempt to use any iCEBOX II features. Do not turn the unit on or off.
- Do not use the remote control or keyboard. Use only the controls on the front panel.
- To avoid interrupting this procedure, set the remote and keyboard out of range or cover the IR window on the front of the unit with a piece of black electrical tape.
- When the procedure is complete, be sure to remove the Update CD from the CD/DVD drive.

To update the operating system from CD

1. Plug the unit in and turn it on, both with the back switch and then, when the LED light is solid, with the power button on the front panel.
2. Press Eject on the front panel to open the disc tray and place the Update CD in the tray (printed side up). Do not push the tray closed. Press Eject on the front panel again to close the disc tray.
3. After a few seconds, the system displays information about this update. To proceed with the installation, choose Update Now. The system begins the update, then restarts itself.
4. When the CD/DVD tray ejects, remove the Update CD.
5. When you see the Update Complete message, choose OK.
6. If necessary, remove the electrical tape covering the IR window. After the update procedure completes, the keyboard and remote may be used normally.
7. Verify that the update was successful by pressing the Internet button on the remote, then pressing Options. On the touch screen, choose Updates. Check that the System Version matches the version printed on the Update CD.

   Note: If the update process was interrupted at any point before completion, you may have to start over from step 1.

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5   Troubleshooting

General Troubleshooting

The following sections cover the troubleshooting procedures for the major functions of the iCEBOX II FlipScreen product.

Troubleshooting Setup

The troubleshooting suggestions in the following sections are meant to be used by service personnel in a test laboratory or electronic servicing facility.

The service engineer will need the following tools, equipment, and materials to complete these troubleshooting procedures for the iCEBOX II FlipScreen product:

1. FlipScreen power cable
2. 10/100 baseT Ethernet port or hub
3. Standard ethernet cable
4. TV antenna or cable TV service
5. Analog telephone line
6. DVD disc
7. USB cable
8. External Audio/Video input source (i.e. Video Camera, VCR, TV or DVD player)
9. iCEBOX II Flipscreen compatible Intercom and electronically controlled lock
10. iCEBOX II Flipscreen compatible USB printer

The service engineer must ensure that all test equipment, cables and other components are in good working order before commencing with the troubleshooting procedures.

Note: The service engineer must perform a Power-On reset before beginning each of the troubleshooting procedures that follow.

Power On Troubleshooting

Follow the procedure detailed in Table 5 to aid in troubleshooting Power On faults.

TABLE 5. Power On Troubleshooting

Check	Yes?	No?
1 Turn on power switch on rear panel. Does LED light on front panel come on?	Continue.	Check that: • The power cord is plugged in firmly at the rear of the unit and in the outlet. • The power outlet is functional. Try plugging into a different outlet. • The circuit is active. Try resetting the GFCI switch. • The power cable is good. Try substituting a different power cable (most PC cables will work). If problem is not resolved, continue.
2 Does LED light turn solid red after 30 to 40 seconds?	Continue.	Check power supply. See *Power Supply Troubleshooting* on page 39.
3 Press the On/Off button on the front panel. Does the LED light turn a solid green?	Continue.	Check power supply. See *Power Supply Troubleshooting* on page 39.
4 Does the touch screen display work?	End.	Perform touch screen troubleshooting. See *Touch Screen Troubleshooting* on page 36.

TV Mode Troubleshooting

Follow the procedure detailed in Table 6 to aid in troubleshooting TV Mode faults.

TABLE 6. Television Troubleshooting

Check	Yes?	No?
1 Does the display show a strong television broadcast signal?	Continue with step 4.	Continue with step 2.
2 Is the TV antenna or cable securely seated in the TV In receptacle?	Continue.	Firmly reseat the antenna or cable. If problem is not resolved, try replacing the antenna or cable. If problem is still not resolved, continue.

TABLE 6. Television Troubleshooting

Check	Yes?	No?
3 Change to Internet mode. Does the display properly show the Internet browser?	1 Change back to Television mode. 2 Press Options. 3 Choose Signal Souce. 4 Select Cable or Antenna, as appropriate. 5 Autoscan for channels. 6 If problem is not resolved, check the display and tuner components of the controller assembly. See *Display* on page45 and *Television* on page47.	Perform touch screen troubleshooting. See *Touch Screen Troubleshooting* on page36. If problem is not resolved, check the display and tuner components of the controller assembly. See *Display* on page45 and *Television* on page47.
4 Is the TV broadcast audible through the speakers?	End.	Firmly reseat the antenna and speaker cables. Using the keyboard or remote, turn the volume to high. If problem is not resolved, check the audio components of the controller assembly. See *Audio* on page49.

FM Radio Mode Troubleshooting

Follow the procedure detailed in Table 7 to aid in troubleshooting Radio faults.

TABLE 7. FM Radio Troubleshooting

Check	Yes?	No?
1 In Radio mode, scan for stations. Is a strong radio broadcast signal being received? (The signal strength icon to the right of the station frequency number should show at least two red bars.)	Continue.	Firmly reseat the radio antenna in the FM In receptacle on the rear panel. Note: You may not receive any radio stations if no broadcast signals are strong enough.
2 Is the radio broadcast audible through the speakers?	End.	Firmly reseat the FM antenna and speaker cables. Using the keyboard or remote, turn the volume to high. If problem is not resolved, check the audio components of the controller assembly. See *Audio* on page49.

DVD/CD Mode Troubleshooting

Follow the procedure in Table 8 to aid in troubleshooting DVD/CD Mode faults.

TABLE 8. DVD/CD Troubleshooting

Check	Yes?	No?
1 Change to DVD/CD mode. Does the DVD splash screen display?	Continue.	Perform touch screen troubleshooting. See *Touch Screen Troubleshooting* on page36. If problem is not resolved, check DVD components of controller assembly. See *DVD* on page47.
2 Press the Eject button on the front panel. Did the DVD/CD tray open?	Continue.	The tray may be jammed. 1 Turn off all power to the FlipScreen unit and unplug from power outlet. 2 Open the touch screen. 3 Behind the touch screen, there is a small rectangular opening in the chassis. Insert a thin flathead screwdriver into the right side of the rectangle and push the tab to the left. This should release the DVD/CD tray. Gently pull the tray out by hand. 4 Plug in the power cord and turn on the rear panel power switch. The DVD/CD tray should be automatically pulled in. (If you do not get a solid red light after 10 to 15 seconds, simply turn the rear panel power switch off and on again.)
3 With no disc in the tray, press Eject again. Does the DVD/CD tray close?	Continue.	Gently push the tray in manually. Continue.
4 Does NO DISC appear on screen?	Press Eject, insert a DVD or CD disc, and press Eject again. Continue.	Check DVD components of the controller assembly. See *DVD* on page47.
5 Does the DVD or CD begin playing automatically (or after pressing the Play button on keyboard, remote or front panel)?	Continue.	Try a different DVD or CD disc to ensure the problem is not with the disc. If problem is not resolved, check DVD components of the controller assembly. See *DVD* on page47.
6 Does the DVD video or CD control panel appear on the display?	Continue.	Check DVD components of the controller assembly. See *DVD* on page47.
7 Is the DVD or CD sound audible through the speakers?	End.	Check that the speaker cables are firmly seated in the rear panel and turn volume up to high. If problem is not resolved, check DVD components of the controller assembly. See *DVD* on page47.

More DVD/CD Troubleshooting Suggestions

If you have inserted a CD or DVD disc, but the screen displays 'No Disc' or 'Data Disc' in the upper right corner (you may have to put the iCEBOX II in DVD/CD mode to see this), then the system is having problems reading the disc. Try the following troubleshooting ideas.

- Press Eject twice to open and re-close the disc tray.
- After inserting the disc, press the Play/Pause button.
- Eject the tray, remove and clean the disc, and re-insert.
- If the disc is an Update CD that you are fairly confident is a good disc, press Eject to open the disc tray, then close the tray by pressing firmly but gently with your hand.

Internet/Ethernet Troubleshooting

Follow the procedure detailed in Table 9 to aid in troubleshooting Internet Mode faults when connected via Ethernet.

TABLE 9. Internet via Ethernet/Broadband Troubleshooting

Check	Yes?	No?
1 Press Internet on the keyboard or remote. Does an Internet browser window appear on the display?	Continue.	Check the ethernet components of the controller assembly. See *Ethernet* on page50.
2 Does an error page appear in the browser?	Perform basic network troubleshooting: • Make sure the network cable is firmly seated in the iCEBOX II unit. • Make sure you are getting connectivity lights on the rear panel, cable and/or hub, as appropriate. • If no lights, try changing cables to check for and eliminate the possibility of a faulty cable. • Optionally continue basic troubleshooting using standard Windows commands. See *Windows-Style Troubleshooting* following these steps. If the problem is not resolved, continue.	End.
3 Is the green Link light (just above the network cable connection on the rear panel) on? (You might use the shiny side of a CD or small mirror to check.)	Continue.	Check the ethernet components of the controller assembly. See *Ethernet* on page50.
4 Press Options on keyboard, remote or front panel. Choose Connection Settings. Ensure that Broadband is selected and then choose Broadband settings. Does the IP Address begin with 169.254?	There is either no connection or no DHCP server. Try the troubleshooting suggestions in step 2 above and then check the ethernet components of the controller assembly. See *Ethernet* on page50.	Continue.

TABLE 9. Internet via Ethernet/Broadband Troubleshooting

Check	Yes?	No?
5 Is there an IP address at all?	Assign a DNS server: 1 Select the Use a Proxy Server check box. 2 In the HTTP field enter either 4.2.2.2 or 4.2.2.3. 3 Choose OK twice to close dialog box and menu, then choose the Refresh Connection button.	Choose OK twice and then choose Refresh Connection.
6 Is the problem resolved?	End.	Check the ethernet components of the controller assembly. See *Ethernet* on page50.

Windows-Style Troubleshooting

When troubleshooting network problems, you can use typical Windows commands, such as `ping` and `ipconfig`. First, however, you must open the Command Shell window.

To open the Command Shell window

1. Turn power off using the switch on the back panel of the iCEBOX II unit. Turn power back on.

2. When the LED light on the front panel blinks a quick red or green, hold down both the Eject and Options buttons until the Command Shell window appears. This may take a number of seconds.

3. You can now enter standard Windows commands for network troubleshooting. If you need help, you can type `/?` after a command to get a list of options. For example, you can type `ping /?`.

   Note: If you prefer working in the Windows CE desktop, optionally type `start explorer` and press Enter.

Internet/Modem Troubleshooting

Follow the procedure detailed in Table 10 to aid in troubleshooting Internet Mode faults when connected via telephone line modem.

TABLE 10. Internet via Modem Troubleshooting

Check	Yes?	No?
1 Press Internet on the keyboard or remote. Does an Internet browser window appear on the display?	Continue.	Check the ethernet components of the controller assembly. See *Ethernet* on page50.
2 Dial the access number from a phone. Is it a working number and do you hear modem tones?	Continue.	Contact the ISP for a valid access number.

TABLE 10. Internet via Modem Troubleshooting

Check	Yes?	No?
3 Does an error page appear in the browser?	Perform these basic troubleshooting steps. 1 Make sure the phone cable is firmly seated in the Phone In port, which is at the top right of the rear panel, and in the phone jack outlet. 2 Disconnect any caller ID or digital cable boxes from the phone line. 3 Press Options, then choose Connection Settings. Make sure Dial-Up is selected, then choose Modem Settings. 4 Re-enter the user name and password, making sure to use proper case (eg., Caps Lock is not on). Some ISPs require a prefix before or suffix after the user name. Check with your ISP for any required prefixes or suffixes. 5 Check that the proper access number is entered. As needed, add a 9, 1, area code, or pause commas (3 seconds per comma). If the line has call waiting, you may also need to add a disable code (check with your phone provider). 6 Select the Use Dialing Sound check box. If the problem is not resolved, continue.	End.
4 Set volume to high. Choose OK twice, then choose Connect. Are a dial tone and connect tones audible? Note: The dialing sound will be choppy. The Stop button on the keyboard or remote stops the modem dial-up.	Continue.	Check the modem components of the controller assembly. See *Modem* on page50.
5 Can the FlipScreen unit now access the Internet?	End. Note: You may want to clear the Use Dialing Sound check box in the Modem Settings dialog box.	Check the modem components of the controller assembly. See *Modem* on page50.

Touch Screen Troubleshooting

Follow the procedure detailed in Table 11 to aid in troubleshooting problems associated with the touch screen.

TABLE 11. Touch Screen Troubleshooting

Check	Yes?	No?
1 Change through the various modes on the FlipScreen (such as TV, Radio and Internet). Does the touch screen display content as expected?	Continue.	Ensure that all touch screen cables are properly seated to the main controller board in the chassis, as well as to the LVDS and Backlight boards inside the touch screen assembly. Also ensure that the LVDS board itself is properly seated within the touch screen assembly. For more information on disassembling the chassis and display assembly, see *Disassembly* beginning on page 19. If the problem is not resolved, check the display components of the controller assembly. See *Display* on page 45.
2 Does the touch screen respond to finger or stylus touch?	Continue.	Check the display components of the controller assembly. See *Display* on page 45.
3 Does the touch screen need to be recalibrated? (If unsure, see instructions for testing calibration following this table).	1 Press the Internet button on the keyboard or remote, and then press Options. 2 Select Browser Settings and press the Go button. 3 Select Calibrate Touch Screen and press the Go button. 4 Following the instructions on screen, touch and hold the stylus where indicated until each mark disappears. 5 When calibration is complete, choose OK twice to close the dialog box and menu.	End.

To test touch screen calibration

1. Plug a USB mouse into one of the USB connectors at the bottom right corner of the iCEBOX II chassis. You should see a mouse pointer on the screen.

2. Touch the screen with the stylus. The mouse pointer should move within 2 millimeters of where you touched. If the mouse pointer is further away than 2 millimeters, you need to recalibrate the touch screen.

Monitor Mode Troubleshooting

Follow the procedure detailed in Table 12 to aid in troubleshooting Monitor Mode faults.

TABLE 12. Monitor Mode Troubleshooting

Check	Yes?	No?
1 Press Monitor on the keyboard or remote. Does the word "Monitor" appear briefly on screen?	Continue.	Check the audio and video components of the controller assembly. See *Audio* on page 49 and *Video* on page 44.
2 Is the video or audio source noisy or not being displayed or heard? Note: If the source (such as a video camera or VCR) is not connected, the screen will appear black after the word "Monitor" briefly appears.	Check that the video and audio cables are firmly and correctly seated in both the rear panel of the unit as well as the source unit. If the problem is not resolved, check the audio and video components of the controller assembly. See *Audio* on page 49 and *Video* on page 44.	End.

Security Mode Troubleshooting

Follow the procedure detailed in Table 13 to aid in troubleshooting Security Mode faults.

TABLE 13. Security Mode Troubleshooting

Check	Yes?	No?
1 Change to Security mode. Does the iCEBOX II unit respond to intercom and electronic lock button presses?	End.	Check that the cable is firmly seated in the DIN connector on the rear panel. Place fresh batteries in the keyboard and/or remote. If problem is not resolved, check the IR components of the controller assembly. See *Infrared* on page 49.

Keyboard/ Remote Control Troubleshooting

Follow the procedure detailed in Table 14 to aid in troubleshooting IR faults when using Keyboard or Remote Control to control the device.

TABLE 14. Keyboard/Remote Control Troubleshooting

Check	Yes?	No?
1 Does the iCEBOX II unit respond to either the keyboard or remote, but not the other?	Put fresh batteries in the device to which the unit does not respond. Ensure that the battery contacts are in good shape and contact the batteries properly.	Continue.
2 Does the iCEBOX II unit not respond to either the keyboard or remote?	The unit may be in demonstration mode. Press the Channel – (down), Volume – (down) and Eject buttons simulataneously. Note: Pressing these same three buttons again will toggle the unit in and out of demonstration mode. If the problem is not resolved, check the IR components of the controller assembly. See *Infrared* on page49.	End.

Print Troubleshooting

Follow the procedure detailed in Table 15 to aid in troubleshooting USB connectivity when connected to compatible printers.

TABLE 15. Print Troubleshooting

Check	Yes?	No?
1 Change to Internet mode, press Options, then choose Print. Does the printer respond?	If the print quality is poor, check with the printer manufacturer or printer manual. End.	Verify that the printer is compatible with the iCEBOX II. Ensure that the printer is plugged in and the printer cable is firmly seated in both the printer and one of the USB ports on the bottom back right corner of the unit. If the problem is not resolved, try the other USB port.

Internal Component Troubleshooting

Internal component troubleshooting includes procedures for debugging the controller board, modem daughter board, DVD drive, power supply, front panel display, and LVDS daughter board components.

Troubleshooting Setup

The troubleshooting suggestions in the following sections should be used by service personnel in a test laboratory or electronic servicing facility. In addition to the equipment listed in the General Troubleshooting section, the service engineer will need the following tools, equipment, and materials to complete the internal component troubleshooting procedures:

1. Oscilloscope and two probes
2. Voltmeter
3. Medium sized Phillips screwdriver
4. Small sized Phillips screwdriver
5. Medium flat head screwdriver

The service engineer must ensure that all test equipment, cables and other components are in good working order before commencing with the troubleshooting procedures.

Note: It is highly recommended to perform Power Supply troubleshooting (as described next) before troubleshooting any other internal components.

Power Supply Troubleshooting

The voltages coming off the Power Supply module can be easily accessed and measured at J3 without removing the controller board from the chassis. Measure and verify the voltage at each pin of J3 as specified in the table below.

TABLE 16. RJ14 Pin Layout and Voltages

RJ14 Pin #	Wire Color	Signal Name	Valid Voltage Range	Measured with respect to RJ14 Pin(s)
1	Yellow	AUDIO_VP12	11.8V to 12.2V	Pins: 3, 4 (AUDIO_GND)
2	Yellow	AUDIO_VP12	11.8V to 12.2V	Pins: 3, 4 (AUDIO_GND)
3	Black	AUDIO_GND	n/a	n/a
4	Black	AUDIO_GND	n/a	n/a
5	Black	GND	n/a	n/a
6	Black	GND	n/a	n/a
7	Black	GND	n/a	n/a
8	Black	GND	n/a	n/a
9	Yellow	VCC12	11.8V to 12.2V	Pin 8
10	Red	VCC5	4.75V to 5.25V	Pins: 5, 6, 7
11	Red	VCC5	4.75V to 5.25V	Pins: 5, 6, 7
12	Orange	VCC3	3.1V to 3.5V	Pin 14
13	Orange	VCC3	3.1V to 3.5V	Pin 14

TABLE 16. RJ14 Pin Layout and Voltages

RJ14 Pin #	Wire Color	Signal Name	Valid Voltage Range	Measured with respect to RJ14 Pin(s)
14	Black	GND	n/a	n/a

CPU Troubleshooting

The CPU controls all the functions for the iCEBOX II FlipScreen unit. All other controller assembly devices are slaves to the CPU. The CPU has two crystal control clocks and requires two different supply voltages.

CPU National Semiconductor Geode 3200, U26

The CPU (U26) is powered by VCC3V, VCORE and is isolated from the main 3.3V supply. The VCC3V supply should measure the same as the 3.3V VCC supply (3.1 to 3.5V).

There is a 2.0V core supply required for the CPU as well. The +2.0V should measure between 1.9V to 2.1V.

Main CPU Clock, X1

Crystal oscillator X1 generates the main CPU clock.

To measure the frequency of the main CPU clock, probe X1 pin 5. It should measure 27MHz as shown in Figure 10.
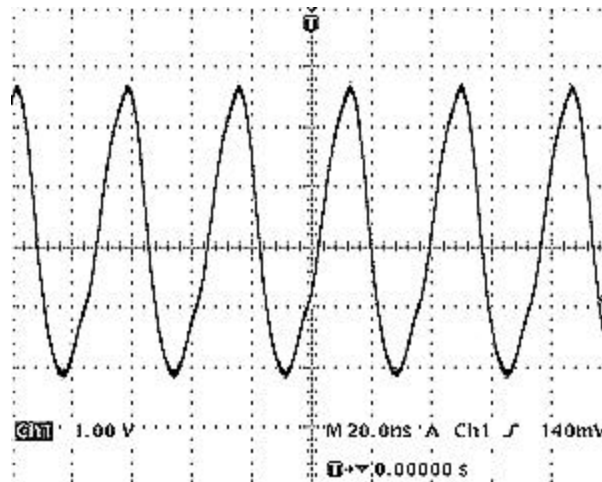
FIGURE 10. Main CPU Clock, U26-A29

CPU Real-Time Clock, Y1

Crystal oscillator Y1 generates the CPU real-time clock. The real-time clock is built within the CPU.

To measure the frequency of the CPU real-time clock, probe R124. It should measure 32.768kHz and look like Figure 11.
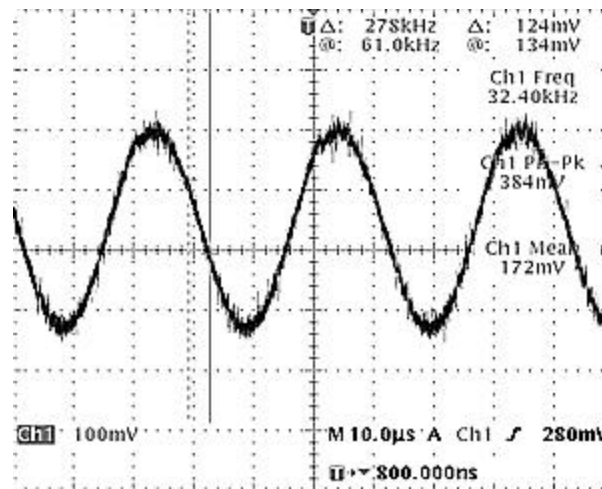
FIGURE 11. CPU Real-Time Clock, U26-C30

CPU SDRAM, U8, U9, U10 and U11

The SDRAM is accessed by multiplexing the address lines using the RAS and CAS lines. RAS signal (U8-18, U9-18, U10-18, U11-18) usually appears as shown in Figure 12 while CAS signal (U8-17, U9-17, U10-17, U11-17) usually appears as shown in Figure 13.
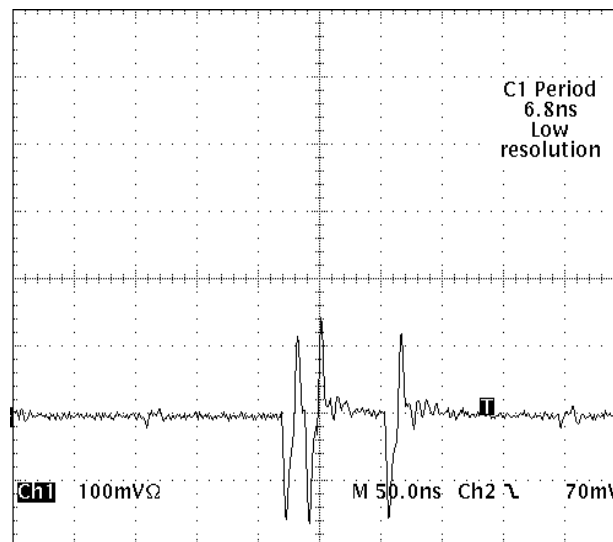
FIGURE 12. CPU SDRAM (RAS Signal)

C1 Period
112.2ns
Low signal
amplitude

Ch1   100mVΩ   M 50.0ns Ch2 ⅃   70mV
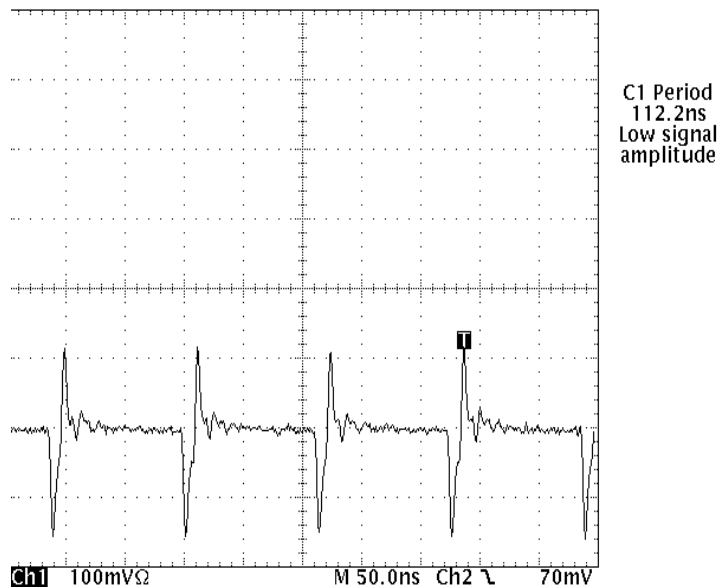
FIGURE 13. CPU SDRAM (CAS Signal)

DiskOnChip Flash Memory, U7

The DiskOnChip Flash memory device is accessed mainly during the first boot-up process of the controller board. The image stored in the DiskOn-Chip will be copied into the SDRAM. The RD# (Read) signal usually appears as shown in Figure 14. The WR (Write) signal usually appears as shown in Figure 15 while the DOCSC# (Select) usually appears as shown in Figure 16.

C1 Period
140ns
Low
resolution

Ch1   50.0mVΩ   M 500ns Ch2 ⅃   70mV
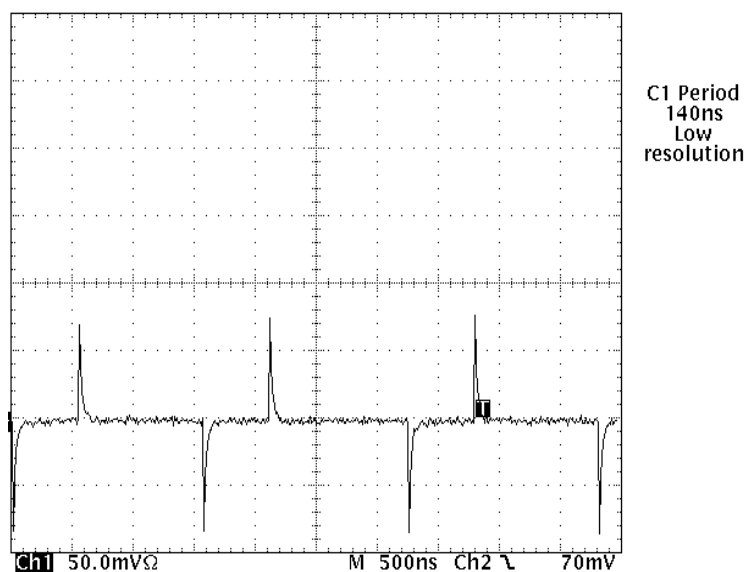
FIGURE 14. Read process signal on DiskOnChip, U7-24
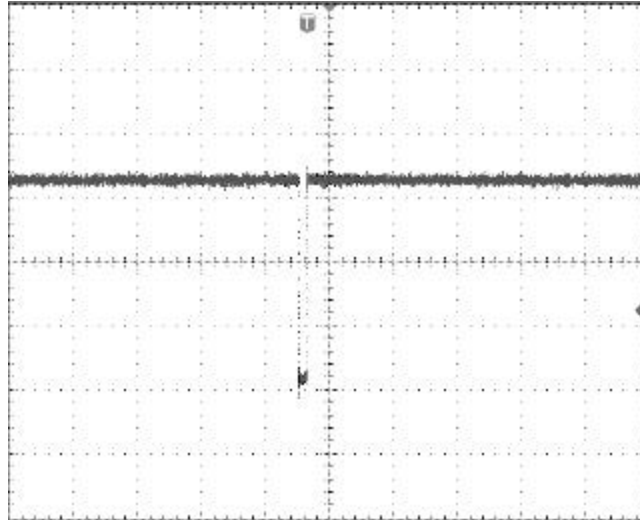
FIGURE 15. Write process signal on DiskOnChip, U7-31
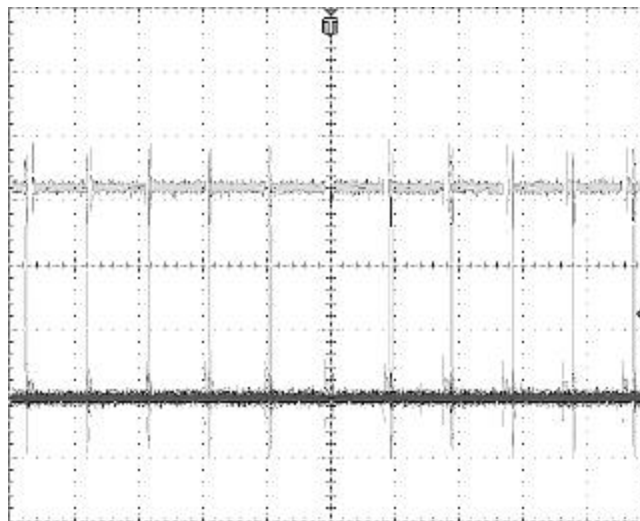
FIGURE 16. Select process signal on Disk On Chip, U7-22

CPU Power Voltage Regulators, U17

Measure and verify VCORE at U44 on L26-2 is between 1.9V and 2.1V.

Measure and verify VCC3V at Q8-5 or Q8-6 or Q8-7 or Q8-8 is between 3.1V and 3.5V.

Figure17 shows the required CPU power-up sequence for VCORE and VCC. The bottom trace is VCC measured at U44 on L26-2, the upper trace is VCC measured at Q8-5 or Q8-6 or Q8-7 or Q8-8.
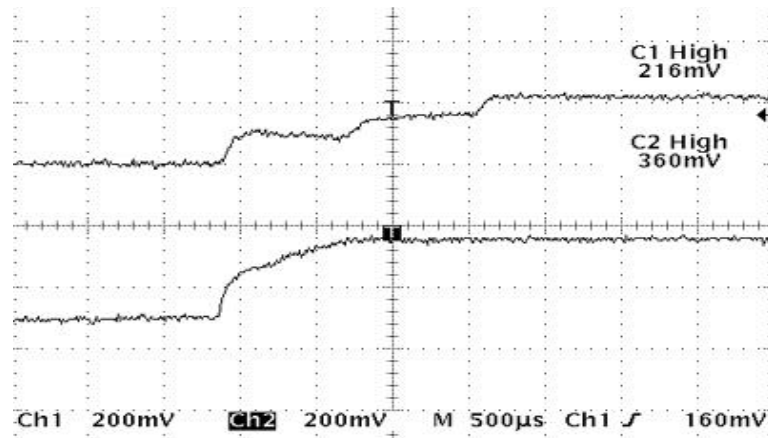
FIGURE 17. CPU Power Up Sequence

Power On Reset, U45

Verify that U45-5 transitions low after power on for 200 to 300 milliseconds and then transitions high. Verify that U45-6 transitions high after power on for 200 to 300 milliseconds and then transitions low.

Fan Control, U21

Touch fan control (U21) body with tip of hot soldering iron or heat gun to reach a temperature above 55°C. U21-3 should transition to high.

Video   Graphics Processor

The Graphics Processor is embedded within the CPU chip Geode 3200. It is a 2D graphics accelerator that supports 256 raster operations.

HREF and VREF

Horizontal (HREF) and vertical (VREF) syncs are the same for TV, Monitor, DVD, and Internet modes. The JSYNC waveform measured at J18 pin 2 should appear as shown in Figure18. The HSYNC waveform measured at J18 pin 4 should appear as shown in Figure19.
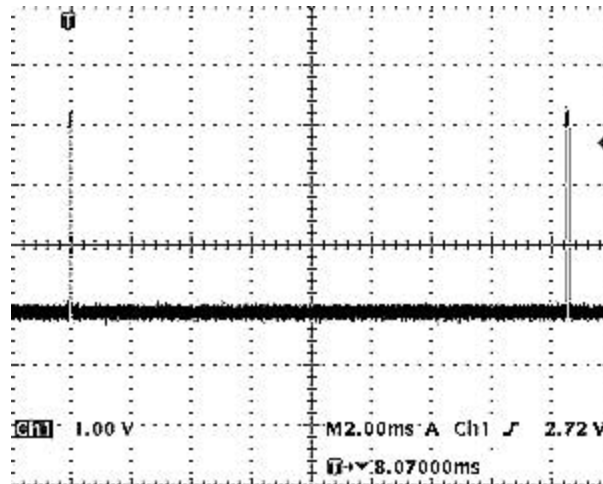
FIGURE 18. VIDVREF, U26-J2, in TV or Monitor Mode
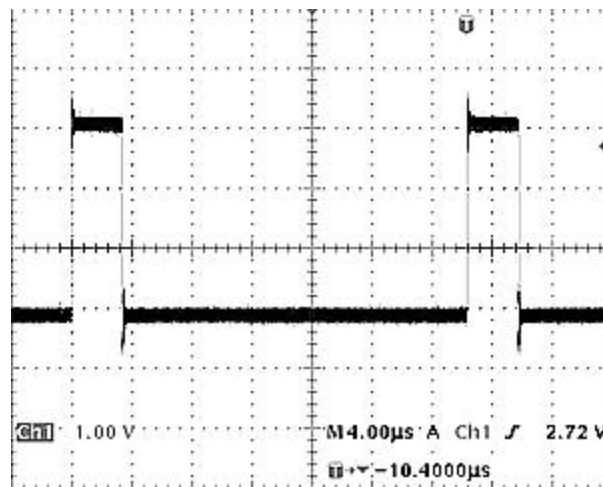
FIGURE 19. VIDHREF, U26-J1, in TV or Monitor Mode

Display   LVDS Transmitter, U1

The LVDS transmitter converts the digital video data and control signals from the graphics processor embedded within the CPU into low voltage differential signals transmitted to the LCD display. The isolated input voltage, VCC at U1-26, should measure from range 3.1V to 3.5V.

The TXCLKIN at U1-26 should be as shown in Figure 20.
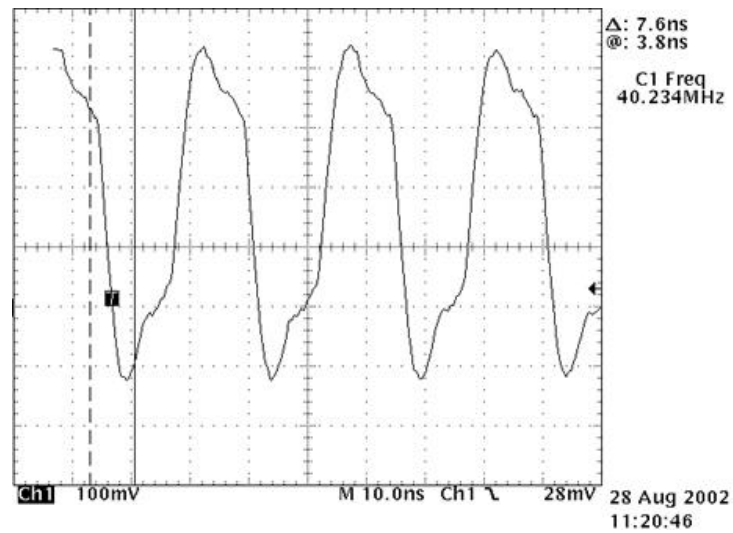
FIGURE 20. LVDS transmitter, U1-26

LVDS Receiver, U1 (LVDS Daughter Board)

The LVDS receiver converts the low voltage differential LCD signals from the LCD display front panel assembly to low voltage TTL signals.

The RXCLKOUT at U1-23 should be as shown in Figure 21.
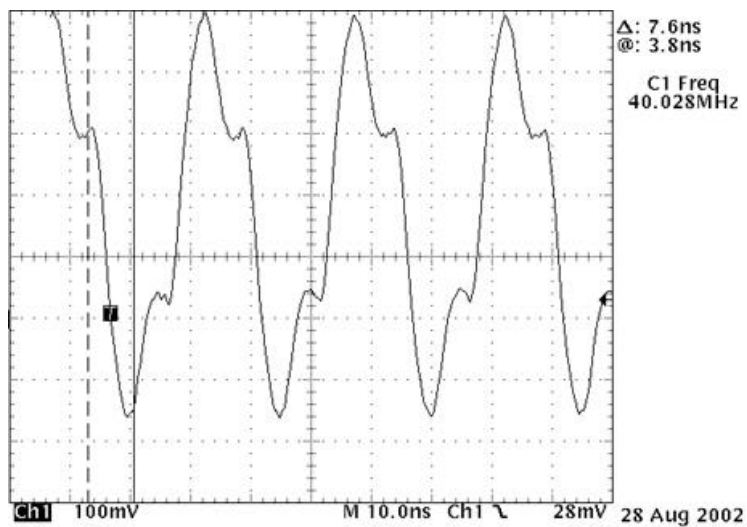
FIGURE 21. LVDS transmitter, U1-23

DVD

CPU for DVD, U25

The main clock for the DVD MPEG Decoder is generated from the audio clock synthesizer (U24). DVD decoder clock is generated by audio clock synthesizer supply voltage at U24-2 and should measure between 3.1V and 3.5V. The waveform on U24-4 through U25-190 or U25-199 should measure 27.00MHz and appear as shown in Figure 22.
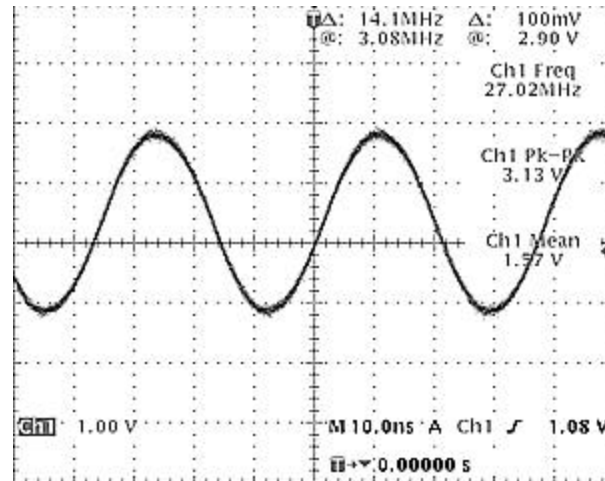
FIGURE 22. DVD Audio Clock Synthesizer, U24-4 through U25-190 or U25-199

SGRAM for DVD CPU, U15

The SGRAM for the DVD control microprocessor is selected with a low going signal on CS (U15-28). For a write operation, WE (U15-25) is low.

ATAPI Interface for DVD

The ATAPI Interface for DVD is embedded within Geode 3200.

VCC12 at J2-1 should measure between 11.8V and 12.2V.

VCC5 at J2-4 should measure between 4.75V and 5.25V.

Television

Philips TV Tuner, U50

The video signal out of the tuner (VID OUT pin 23) is composite video format and looks like Figure 23 (beginning with the start of the even frame).

5V_TUNER at U50-12 and U50-24 should measure between 4.75V and 5.25V.

Note: If TV audio or picture is excessively noisy, check for noise on U50-12 and U50-24. If U50-12 or U50-24 are noisy, check L29, L30, and 5V_TUNER from power supply for source of noise.
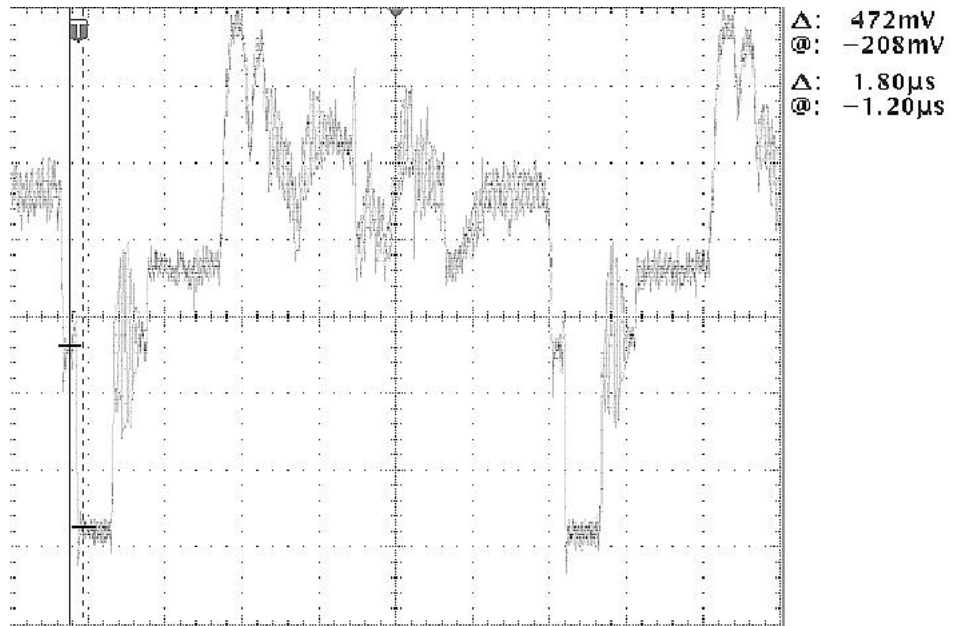
FIGURE 23. Video Out Signal, VID OUT pin 23

Philips Video Decoder SAA7114H, U22

The decoder clock (U22-6) through crystal Y7 should measure 24.576MHz and look like Figure 24.
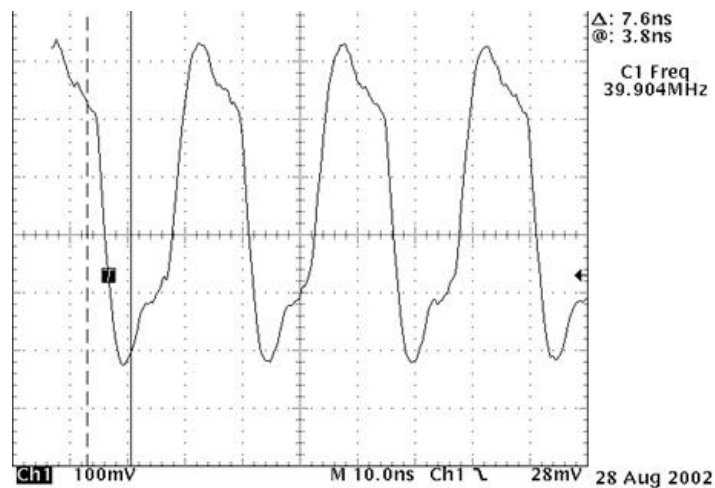
FIGURE 24. Video Decoder, U22-7

Audio   DVD Audio DAC WM8725, U18

VCC at U18-8 should measure between 4.75V and 5.25V.

Audio Power Amp LM386M-1, U28

AVCC5 at U28-6 should measure between 4.75V and 5.25V.

Audio –5V Power Supply, U12

VCCM5 at U12-5 should measure between –5.25V and –3.5V.

Infrared   Infrared Receivers, U52 and U3 (Modem Board)

Verify U52-2 and U3-2 measure between 4.75V and 5.25V.

With no IR signal applied, verify U52-3 and U3-3 measure between 4.75V and 5.25V.

Verify U52-3 and U3-3 transition low when keyboard or remote IR signal is applied and looks like Figure 25.
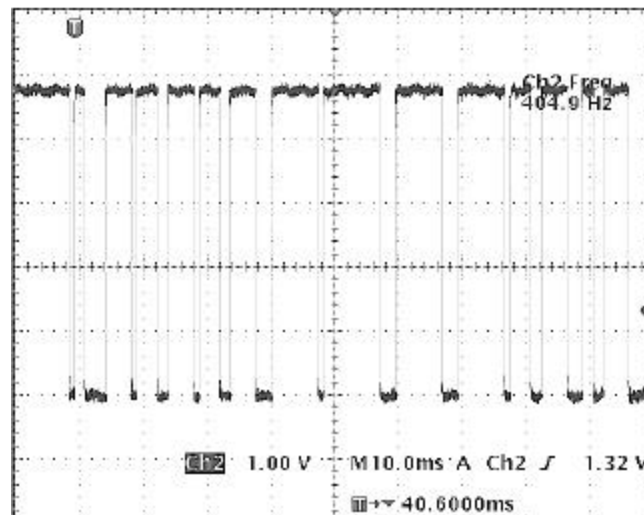
FIGURE 25. IR Receiver response to IR signal, U52-3 and U3-3

Modem   Conexant CX88168-11 Modem, U47

The main Modem clock (U47-114) should measure 28.224MHz and look like Figure 26.
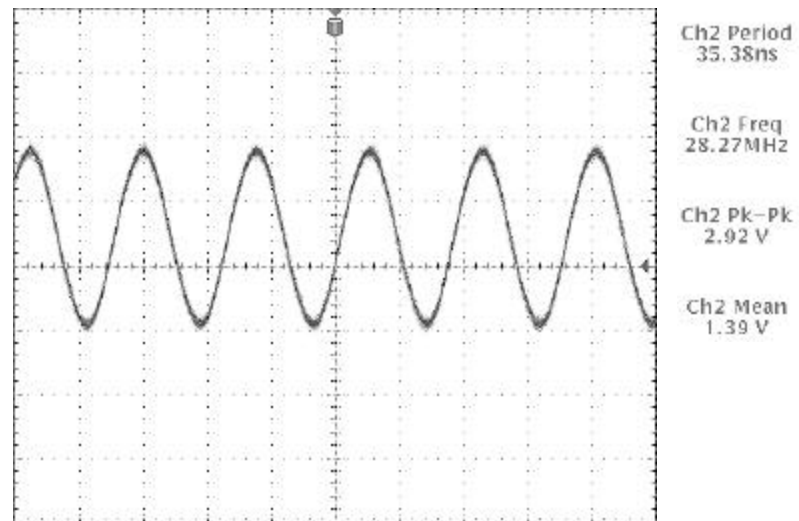
FIGURE 26. Conexant Modem U47-114

Conexant 20463-11 Smarts DAA, U2

The Smart DAA system-powered DAA operates reliably without drawing power from the line. It also provide local extension status monitoring without going off-hook.

Modem EEPROM, U43

U43 provides storage for modem customization and configuration.

Ethernet   Ethernet Controller, U42

RXAVDD2 at U42-47 should measure 3V as it connects to VCC3V.

Boot Up Troubleshooting

If the iCEBOX II FlipScreen does not boot up properly (the LED light blinks red continuously), you can conduct troubleshooting by connecting a Windows laptop to the iCEBOX II and using the iCEBOX's Boot Loader Menu within a terminal services program.

To access the Boot Loader Menu

1. Using a null modem cable with two female ends, connect the iCEBOX II FlipScreen to a laptop (or PC) running Windows 98 or higher, by plugging in to each unit's serial port.
2. On the laptop, run a terminal emulation program, such as Windows' HyperTerminal. (In Windows XP, go to Start – All Programs – Accessories – Communications – HyperTerminal.)
3. For the connection to the iCEBOX II, set the COM port settings on the laptop to 38400 baud, 8-N-1 (8 bits, no parity, 1 stop), and "Hardware" flow control.
4. While holding down the Channel – (down) button, turn on power to the iCEBOX II unit, using the switch on the back of the unit. The Boot Loader Menu appears in the terminal emulation program on the laptop.

Note: The submenus of the Boot Loader menu have default options which will be selected automatically if no other activity occurs within approximately 15 seconds. The default commands are noted directly on the submenus with the words 'Default Option' in parenthesis.

Resetting Production Information

Problems may occur during boot up if the unit production information has not been properly set up.

To check production information settings

1. Access the Boot Loader menu (follow previous instructions).
2. Choose 'G' (Production Menu) from the Utilities menu. The Production menu becomes available.
3. Choose 'A' (Display Unit Production Info) from the Production menu. Various information settings appear.
4. Check that:
   a. the Serial Number matches the number on the unit's sticker
   b. the DVD Region code is correct ('01' for North America or '02' for Europe)
   c. the Network MAC Address is correct (will always start with '0001 AD00' followed by four more characters)
   d. The Touch Linearization Constant is correct (you will find this value on the label on the touch screen cable; it is a long string of numbers and letters)

Note: The Unit Data value should always be 'IceBox 01'. The Region Set Count value is system controlled.

5. If any of the information settings are incorrect, reset them by completing the following steps.

To correct information settings

1. With the Production menu available (follow steps 1 and 2 above), choose option 'B' (Manual Production Commands).

2. Type one of the following commands, as appropriate, followed by the correct setting information. The commands are case-sensitive.

   a. setSerialNumber (example: setSerialNumber(FA20_E0ABN_ 00030))

   b. setDvdRegion (example: setDvdRegion(01))

   c. setMacAddress (example: setMacAddress(0001AD001234); no spaces)

   d. setLinearization (example: setLinearization(010504170121FD 17FF08040A081105170013FB0D0C0E0C0B090C020AF909 0C0E0F040AFD03FFFC050D0B12FA0BEE04F300FE)

 Note: You will need to reset the Touch Linearization Constant if you swap out the touch screen

3. Check the production information settings again (option 'A' on the Production menu) to ensure that the information was properly reset.

 Note: Option 'C' on the Production menu (Scan Production Commands) is not typically used in the field.

Correcting User Settings

If all the production information settings appear correct but the iCEBOX II FlipScreen still does not boot properly, the cause may be corrupt user settings.

To reset user settings

 Note: Completing the following steps will erase all user settings, such as TV channel and radio station lists.

1. Turn on power to the iCEBOX II and wait till the LED light on the front panel is quickly flashing either red or green.

2. Press and hold both the Eject and Options buttons until a Command Shell window appears on the screen (this may take a number of seconds). If a Command Shell window does not appear, the operating system needs to be updated. Go to the steps for Updating the Operating System.

3. In the Command Shell window, type `cd diskonchip` and press Enter.

4. Next, type `dir persist.xml` and press Enter.

5. Then, type `del persist.xml` and press Enter.

6. Reboot the iCEBOX II unit.

Checking the Version

Assuming the unit powers on without problems, you should double check that the unit has the most recent operating system version.

To check the operating system version

1. Press Internet on either the keyboard or remote. (If the unit does not respond, see *Keyboard/Remote Control Troubleshooting* on page 38.)

2. Press Options on the keyboard, remote, or front panel, and then select Updates. The version number appears in the Internet Options dialog box.

3. If you are unsure if the version displayed is the most recent version, select Check for Updates. If the message "There are no updates available" does not appear after a few seconds, then follow the instructions in the section *Updating the Operating System* on page 53.

Updating the Operating System

If the Command Shell window does not appear when attempting to reset the user settings, the iCEBOX II's operating system needs to be updated.

To update the operating system

1. Locate an update CD by verifying that it has the files `nk.bin` and `iceupdate.xml` in the root directory.

2. Follow the earlier instructions *To access the Boot Loader Menu* on page 51.

3. Choose 'E' (Eject CD Tray) from the menu.

4. Insert the update disc in the CD/DVD tray.

5. Choose 'F' (Load CD Tray) from the menu.

6. Choose 'A' (Boot from Drive). The system will automatically begin the update. You will see the LED light on the front panel change from slow blinking, to quick blinking, then back to slow blinking. When the update is complete, the system will automtically reboot.

7. When the LED light reaches a solid red, press the Power button on the front panel.

8. With the remote control or keyboard, press the DVD & CD button. Then on the touch screen, press Update Now, Done, OK and Eject. The system automatically reboots.

Note: If, after rebooting, the LED light continues to blink and the system does not come up then complete the steps *To reset user settings* on page 52.

Note: If an interrupt occurs, such as a power failure, during execution of the previous steps, repeat all the steps for updating the operating system.

If, after updating the operating system, the system still exhibits unusual behavior (for example, the CD/DVD try won't eject), try the following troubleshooting ideas.

- For broadband users, reset the IP address and other related network connection information by following the steps in *Internet/Ethernet Troubleshooting* on `page33`.
- Assuming you can now open the Command Shell window (follow the steps in *Internet/Ethernet Troubleshooting* on page 33), do so and then type `dir diskonchip\ImgUpdate` at the command line. If you see a `\current` dirctory, delete all the files in it by typing `del current` and then entering `y` for yes when asked if you are sure.

Problems with Slow Performance

If the iCEBOX II seems to be working fine except for extremely slow performance, this may be caused by a bad system date.

To correct the system date:

1. With the iCEBOX II unit turned on, press the Internet button on the keyboard or remote, and then press Options.
2. Choose Browser Settings.
3. Make sure the date is set to the current Month, Day and Year, and correct as needed.
4. Press OK twice to close the dialog box and menu.

icebox flipscreen

2   Mechanical Views and Parts Lists

Chassis Cover Installation

LOCATE TOP OF AGENCY RATING LABEL ALONG THIS EDGE

CHASSIS COVER INSTALLATION
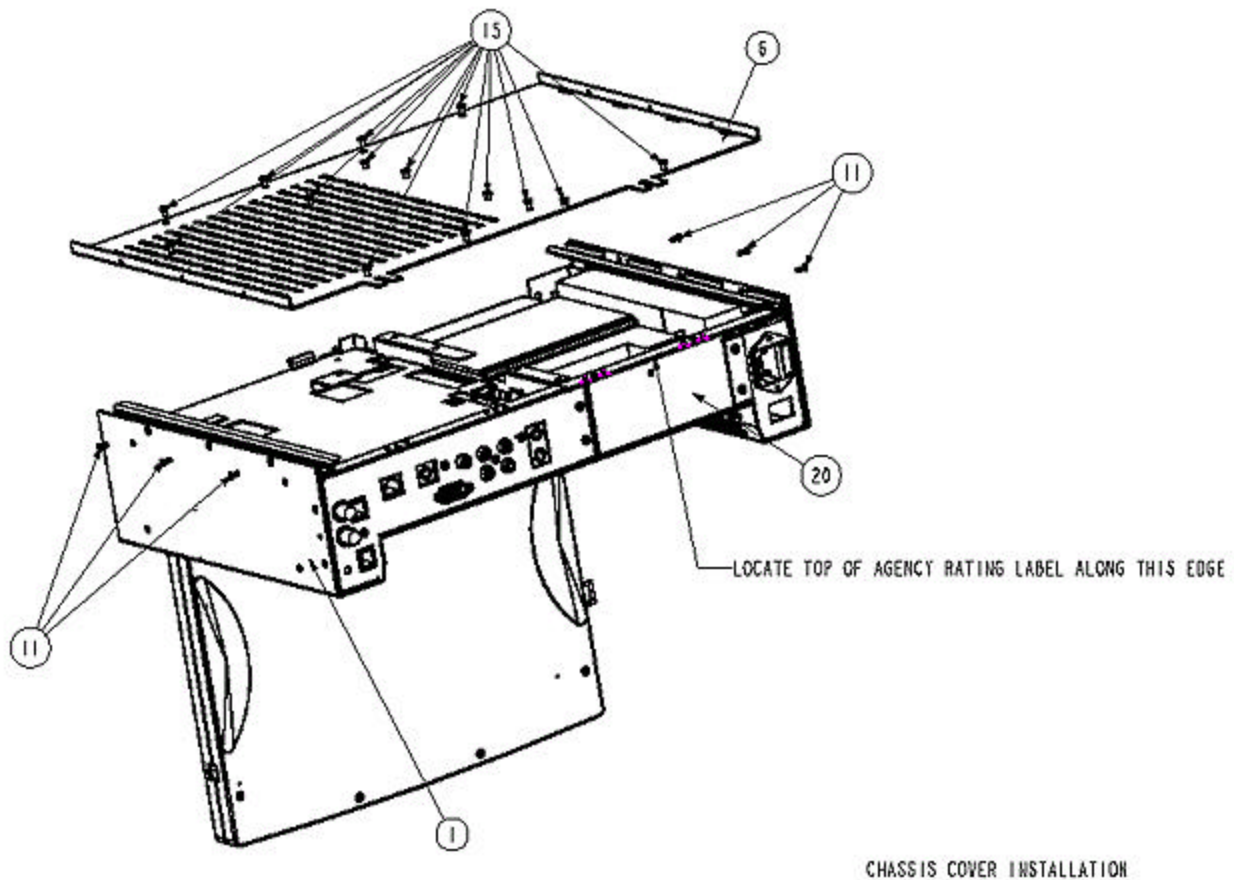
TABLE 17. Chassis Cover Installation Assembly Parts List

Item No.	Part No.	Description	Qty
1	ICE-CHAS-069	Chassis Weldment	1
6	CMI-CHAS-076	Chassis Cover With Guide Rails	1
11	CMI-SRW-00018	M3 X 0.5-5 Phil Flat Head Screw	6
15	ICE-MISC-148	M3 X 0.5-6 Phil Pan Head Screw	14
20	ICE-MISC-126	Printed Agency Rating Label	1

Power Supply Installation
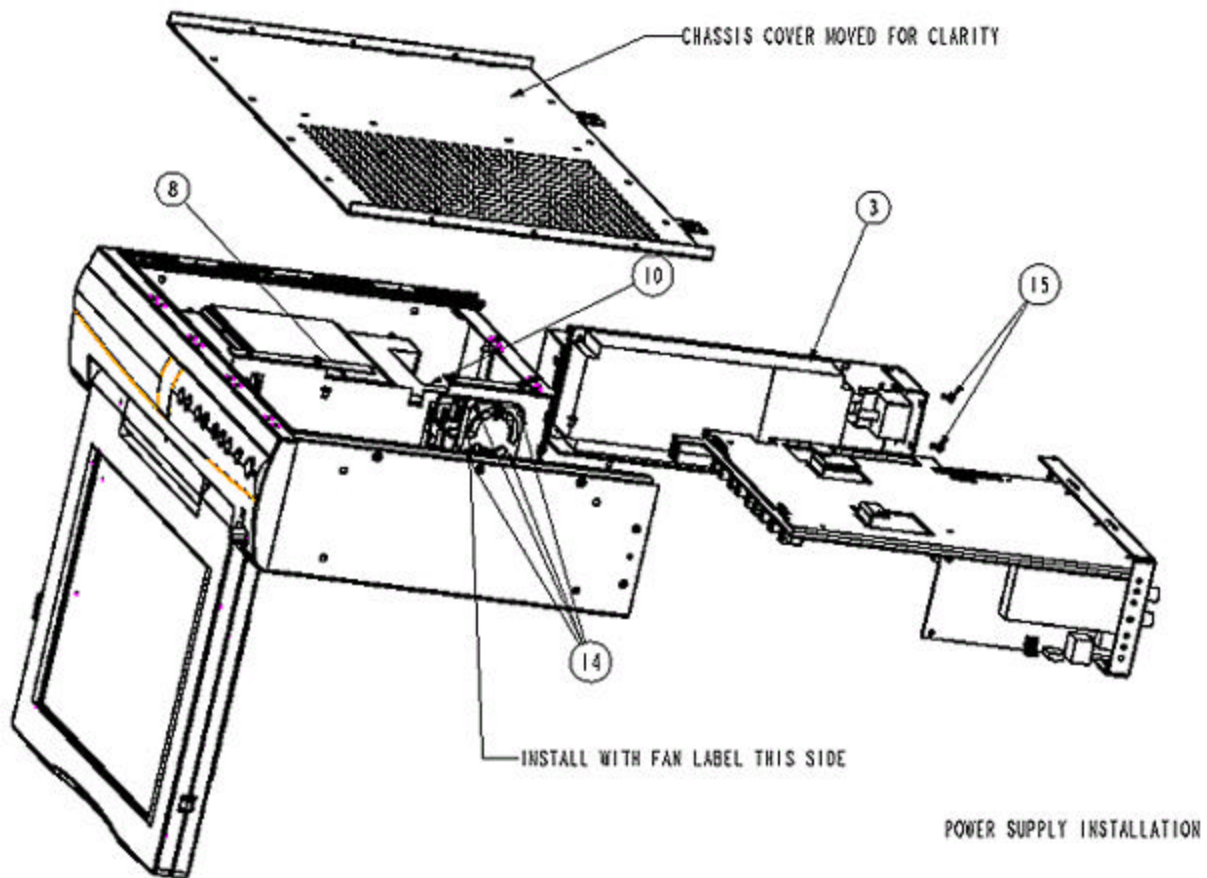
TABLE 18. Power Supply Installation Part List

Item No.	Part No.	Description	Qty
3	CMI-PS-077	Power Supply Assembly-cmi	1
8	CMI-CPCB-101	Atapi Dvd 40 Conductor Cable	1
10	CMI-CPCB-102	Atapi Dvd Power Cable	1
14	ICE-MISC-179	M3x0.5-14 Phil Pan Head Screw	4
15	ICE-MISC-148	M3x0.5- 6 Phil Pan Head Screw	2

Controller Assembly With Fan Installation

CHASSIS COVER MOVED FOR CLARITY

CONTROLLER ASSEMBLY WITH FAN INSTALLATION
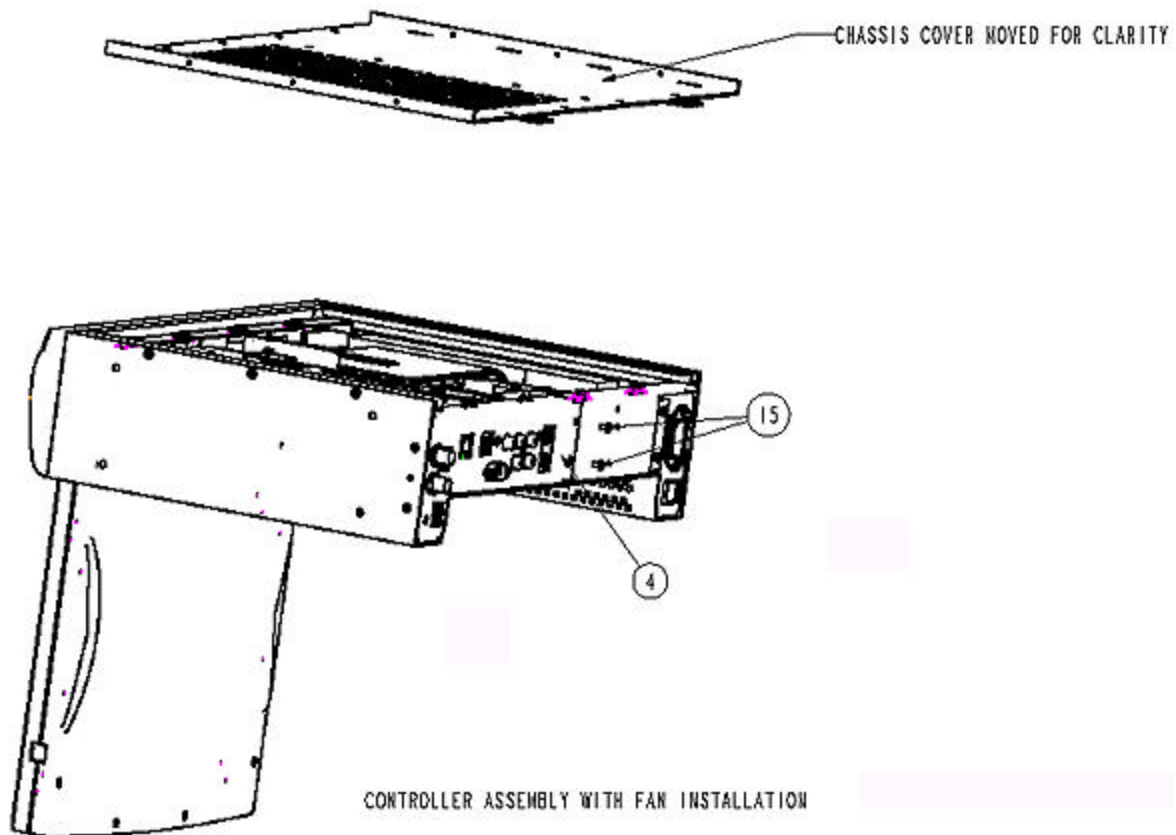
TABLE 19. Controller Assembly With Fan Installation Part List

Item No.	Part No.	Description	Qty
4	ICE-CPCB-070	Controller Assembly	1
11	CMI-SRW-00018	M3x0.5 - 5 Phil Flat Head Screw	7
15	ICE-MISC-148	M3x0.5-6 Phil Pan Head Screw	2

DVD Installation

CHASSIS COVER MOVED FOR CLARITY

FRONT COVER MOVED FOR CLARITY
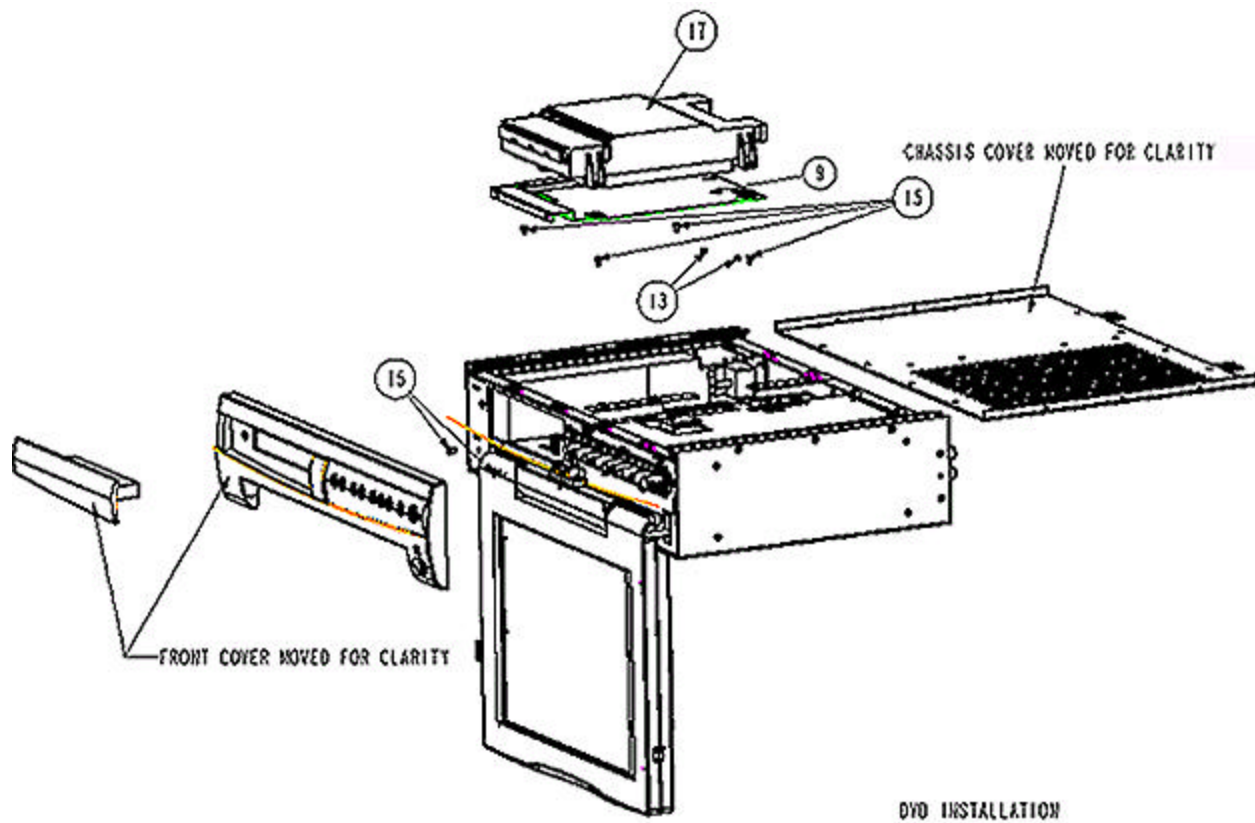
DVD INSTALLATION

TABLE 20. DVD Installation Part List

Item No.	Part No.	Description	Qty
9	ICE-CHAS-009	DVD Mounting Plate	1
13	CMI-NUT-0002	M3x0.5 - 0.8 Hex Nut (Zinc Plated)	2
15	ICE-MISC-148	M3x0.5 - 6 Phil Pan Head Screw	4
17	ICE-DVD-127	DVD Drive	1

Front Cover Installation

FRONT COVER INSTALLATION
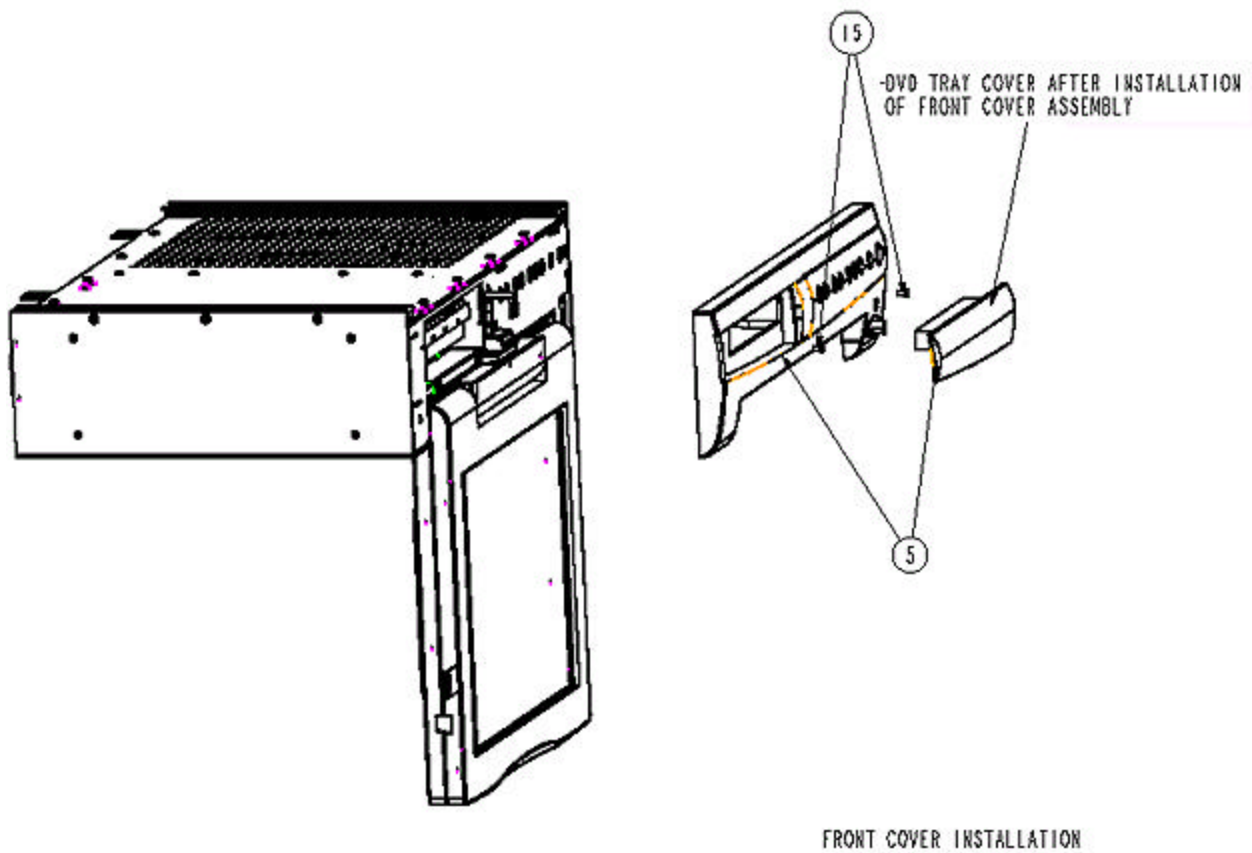
TABLE 21. Front Cover Installation Part List

Item No.	Part No.	Description	Qty
5	ICE-FC-047	Front Cover Assembly	1
15	ICE-MISC-148	M3x0.5-6 Phil Pan Head Screw	2

Display Assembly Installation

DISPLAY CABLE THRU HERE

DISPLAY ASSEMBLY INSTALLATION

FRONT COVER MOVED FOR CLARITY
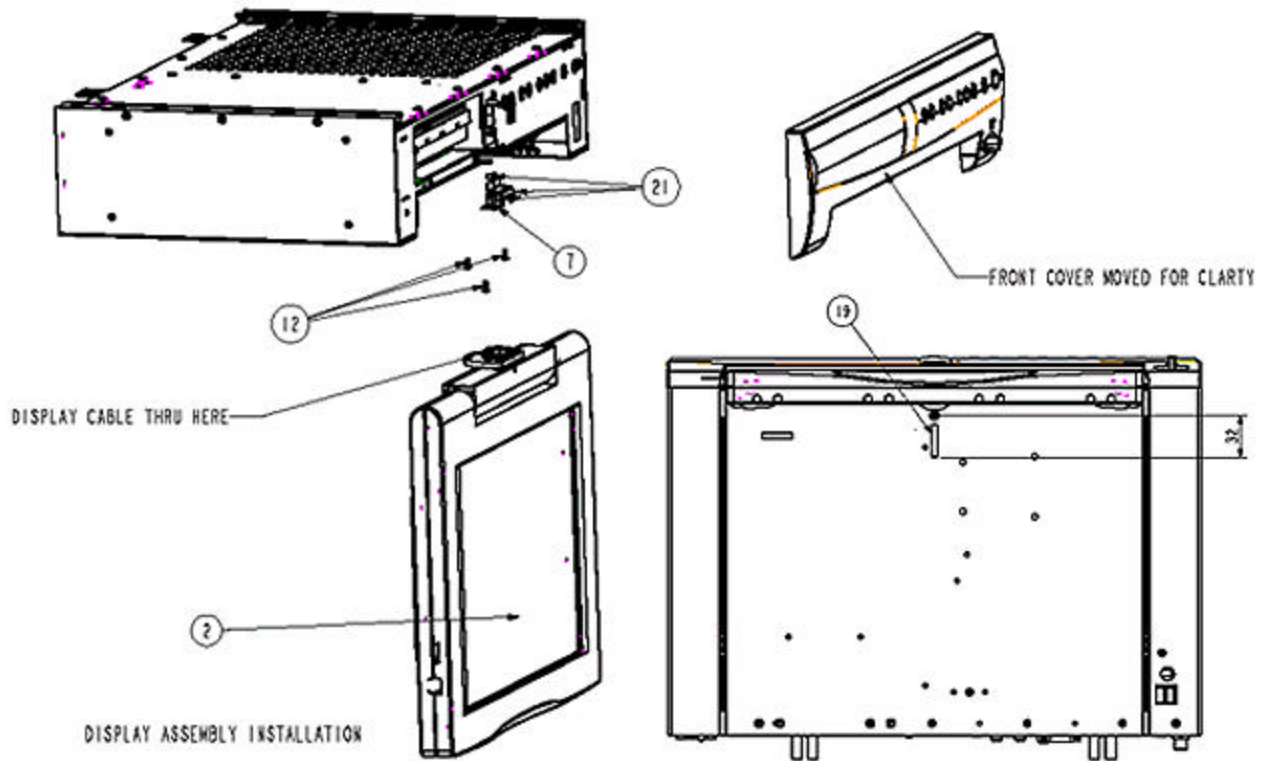
TABLE 22. Display Assembly Installation Part List

Item No.	Part No.	Description	Qty
2	ICE-DISP-035	Display Assembly	1
7	CMI-CHAS-076	Pivot Shield	1
12	CMI-SRW-00025	M3.5x0.6 - 6 Phil Flat Head Screw	3
19	I0675	Serial Number Label	2
21	ICE-MISC-169	M3.0x0.5-5 Phil Pan Head Screw	3

FlipScreen Top Assembly

REMOVE THESE THREE SCREWS TO MOUNT THE CABLE TRAY (ITEM 5)

INSTALL CABLE TRAY (ITEM 5) AFTER INSTALLATION OF FLIPSCREEN ASSEMBLY TO SYSTEM MOUNTING PLATE (ITEM 6)

TO INSTALL, REMOVE THREE SCREWS FROM THE CHASSIS BASE WHICH RETAIN THE CONTROLLER PCB ASSEMBLY, ALIGN THE HOLES IN THE TRAY WITH THE HOLES IN THE CHASSIS BASE AND RE-INSTALL THE THREE SCREWS. ALIGN THE TRAY AS SHOWN.

CABLE TRAY SHOULD CLEAR MOUNTING SCREWS (ITEM 7) WHEN INSTALLED

TABLE 23. FlipScreen Top Assembly

Item No.	Part No.	Description	Qty
1	ICE-FLIP-080	Chassis Top Assembly	1
2	ICE-SPKR-081	Speaker Assembly (Right)	1
3	ICE-SPKR-081	Speaker Assembly (Left)	1
4	CMI-CHAS-016	Speaker Mounting Bracket	2
5	CMI-CHAS-104	Cable Tray	1
6	CMI-CHAS-108	System Mounting Plate Assy	1
7	CMI-CHAS-091	Chassis Locking Screw	2
8	CMI-WSH-00002	M4 (Din 6798 Type J) Inttooth Lock Washer	2
9	CMI-SRW-00018	M3 X 0.5 - 5 Phil FL HD Screw	8
10	ICE-MISC-180	Pt Ka25x8mm Phil FL HD Screw	8

Display Assembly
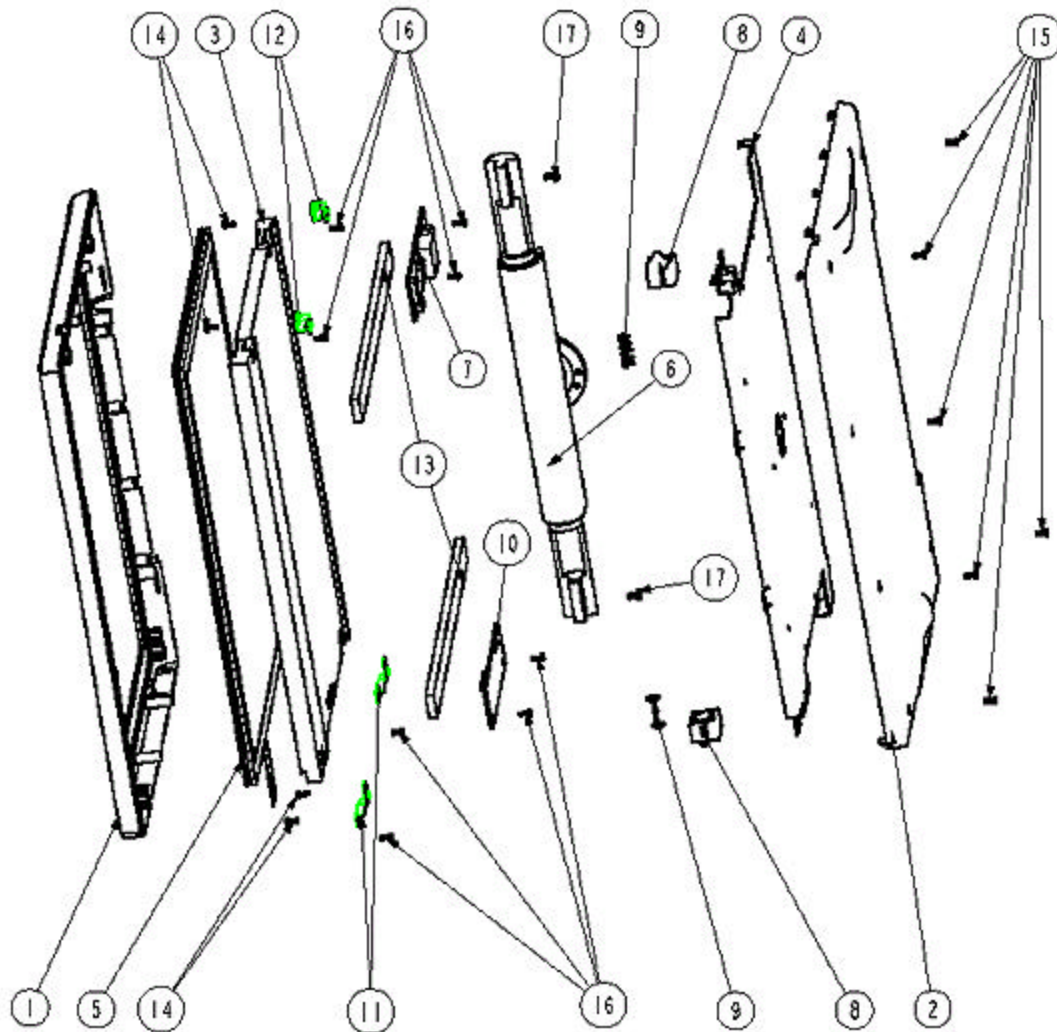
TABLE 24. Display Assembly Parts List

Item No.	Part No.	Description	Qty
1	ICE-DISP-030	Front Display Cover	1
2	ICE-DISP-036	Rear Display Cover	1
3	ICE-DISP-121	12.1" LCD Sanyo Panel	1
4	ICE-DISP-038	Display Stiffner-metal	1
5	ICE-DISP-120	Touch Screen With Gasket	1
6	ICE-PIV-034	Pivot Assembly	1
7	ICE-PCBBI-131	Backlight Interver Assembly	1
8	CMI-DISP-041	Latch (Molded)	2
9	CMI-DISP-042	Latch Spring	2
10	ICE-PCBLV-130	LVDS PCBA	1

TABLE 24. Display Assembly Parts List (Continued)

Item No.	Part No.	Description	Qty
11	ICE-DISP-116	Display Bracket_1	2
12	ICE-DISP-117	Display Bracket_2	2
13	CMI-EMI-00002	Emi Gasket	2
14	ICE-MISC-148	Phil Pan Hd M3.0 X 0.5-6 Mach Screw	4
15	ICE-MISC-168	Phil Flat Hd M3.0x0.5 - 20 Mach Screw	6
16	ICE-MISC-167	Phil Pan Hd M2.6 X 0.5 - 5 Pt Screw	8
17	ICE-MISC-166	Phil Pan Hd M3.0 X 0.5 - 10 Mach Screw	2

Pivot Assembly
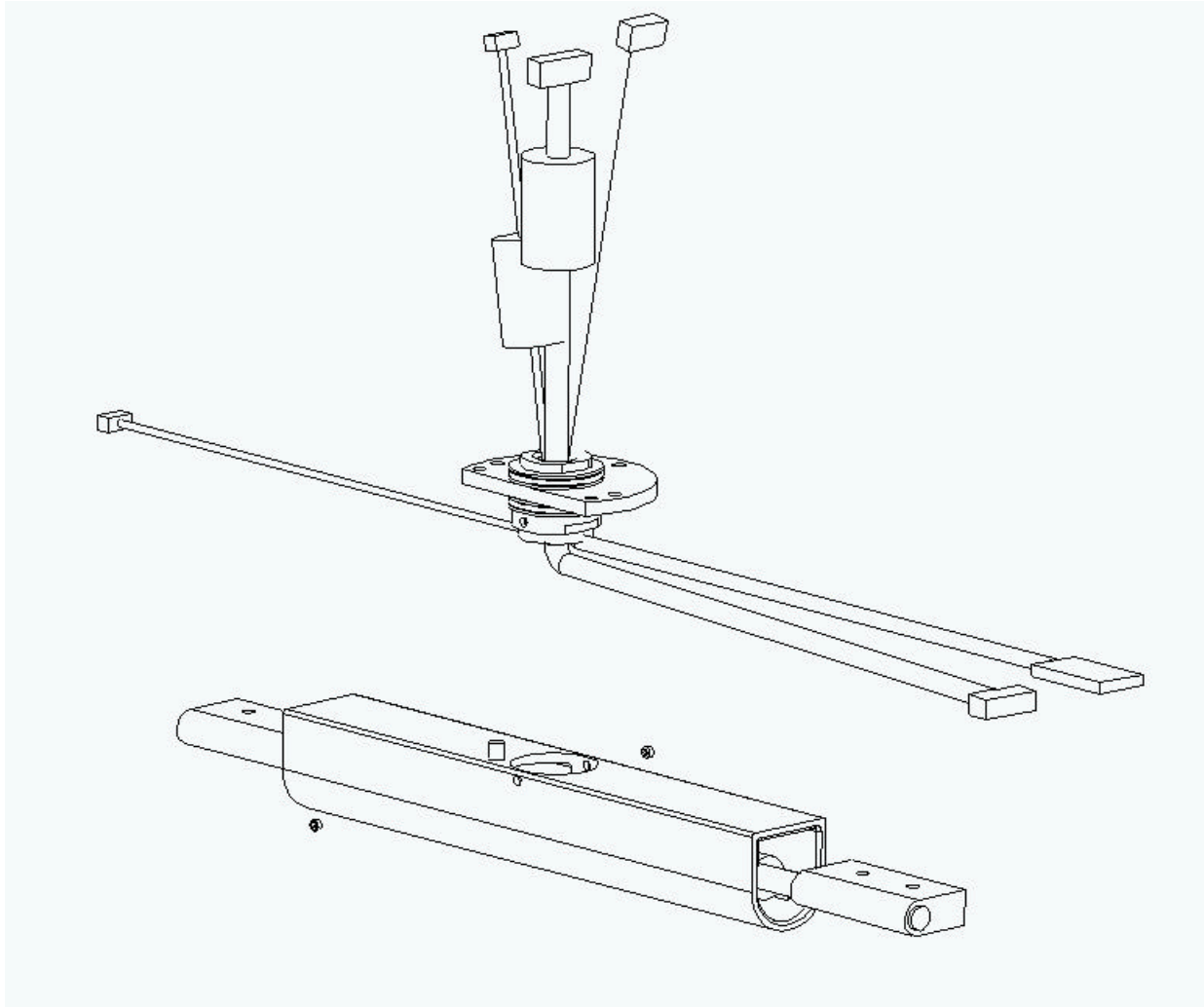
TABLE 25. Pivot Assembly Parts List

Item No.	Part No.	Description	Qty
	ICE-PIV-034 (K2)	Pivot Assembly	
1	CMI-PIV-023 (C)	Pivot Center Core	1
2	CMI-PIV-019 (B)	Thrust Bearing Washer	4
3	CMI-PIV-018 (B)	Thrust Needle Roller Bearing	2
4	CMI-PIV-020 (C)	Pivot Support Plate	1
7	CMI-PIV-022 (C)	Pivot Centre Ring	1
8	CMI-SRW-00002 (NA)	M3 X 0.5-3.0 Flat Point Socket Set Screw	2
9	CMI-SRW-00003 (NA)	M3 X 0.5-6.0 Flat Point Socket Set Screw	2
10	ICE-PIV-021 (H3)	Pivot Block	1
11	CMI-PIV-199 (A2)	Pivot Extrusion	2
12	ICE-PIV-00204 (A1)	Friction Hinge	2

icebox flipscreen

3   Parts Lists

Top Assembly

TABLE 26. Parts List for iCEBOX II FlipScreen Top Assembly

Item	Type Code	Qty	iCEBOX P/N	Rev.	Description
1	ASSY	1	31000	L	Top level FlipScreen unit assembly
2	ASSY	1	30500	F	Accessories clamshell assembly
3	PURCH	1	CMI-BAG-00001		Polyethylene bag (clear, 4 mil, recycle label)
4	PURCH	1	CMI-DEC-00001		Desiccant
5	CUST	1	CMI-PKG-00001	A	Outer carton
6	CUST	-	10692	C	1 color box graphics
7	CUST	1	CMI-PKG-00002	A	Inner carton (gift box)
8	CUST	-	10691	C	2 color box graphics
9	CUST	1	CMI-PKG-00004	A	End cap, left & right
10	CUST	1	CMI-PKG-00005	A	Center cap
11	CUST	2	10693	E	UPC barcode label (inner & outer)
12	CUST	1	10667	A	Serial number barcode label

Type Codes: ASSY = Assembly, PURCH = Purchased Part, CUST = Custom Part

Controller Board

TABLE 27. Parts List for iCEBOX II FlipScreen Controller Board

#	iCEBOX P/N	Description	Qty	Ref. Designator	Mfr	Mfr P/N
1	ICE-47000462	DIODE, MMBD4148SE HIGH CONDUCTANCE 75V 200MASOT23	20	D10, D7, D9, D11, D14-D23, D2-D6, D25	Fairchild	MMBD4148SE
2	ICE-46101221	LED, D5X8.6MM 20MA RADIAL RED/ORANGE BI-COLOUR	1	D1	Kingbright	L-59EGW
3	ICE-47000005#1	DIODE, 1N4001 GENERAL PURPOSE 50V 1A AXIAL DO-41	1	D8	Fairchild	1N4001
5	ICE-43500067	FERRITE BEAD, 120OHM 100MHZ 200MA SMT0805	34	FB1, FB2, FB4-FB11, FB13, FB26-FB31, L7-L11, L17, L20, L22-L24, L27, L28, L15, FB12, FB14, FB15, FB19	Kingcore	FBM-11-201209-121T
6	ICE-43200208	FERRITE BEAD, 60OOHM 25% 100MHZ 2A SMT 0805	12	FB3, FB16-FB18, FB20-FB25, L12, L13	Jantek	JCB201209A-601/2
7	ICE-41104160	CONN, LOCK HEADER 7X2 VERT	1	J27	JST	B14B-PHDSS
8	ICE-41000037	LOCK HEADER, 2-PIN 0.1 SQUARE PIN	1	J10	Molex	22-27-2021
9	ICE-41000323	PIN HEADER, 3X1 2.54MM PITCH THRU' HOLE (G/F)	4	J13-J15, J17	Harwin	M20-9990305
10	ICE-41000462	CONNECTOR, 5 PIN VERT HEADER	1	CN1	Molex	530-47-0510
11	ICE-41103006	BOX HEADER, 13X2 0.1" POLARIZED 30U	1	J25	Molex	702-46-2622
12	ICE-41103065	CONN, BOX HEADER 20X2 0.1" VERT POLARIZED G/F	1	J12	3M Electronics	2540-6002UB
13	ICE-41000094	PIN HEADER, 4X2 0.1"	1	J23	Harwin	M20-9980405
14	ICE-41000003	BOX HEADER, 5X2 0.1 POLARIZED 30U	1	J1	Molex	702-46-1022
15	ICE-41000324	PIN HEADER, 5X2 2.54MM PITCH THRU' HOLE (G/F)	1	J26	Harwin	M20-9980505
17	ICE-41000610	MINI DIN CONN, 4P STACK R/A SHIELD G/F BLACK	1	J4	Kycon	KMDG-4S/4S-S4N
18	ICE-41001158	CONN, BD TO BD RECEPTA-CLE 50P 2MM VERT SMT T/P	1	J22	Molex	79109-0224
19	ICE-41000277	CONN, LOCK HEADER 14X1 2.5MM THRU HOLE VERT T/P	1	J3	Leoco	2521P14V000
20	ICE-41000422	CONN, 3PIN FULLY SHROUDED HEADER 5.00MM VERT T/P	1	J9	Astron	AT-WS21-03-1-0-W

TABLE 27. Parts List for iCEBOX II FlipScreen Controller Board

#	iCEBOX P/N	Description	Qty	Ref. Designator	Mfr	Mfr P/N
21	ICE-41000278	CONN, LOCK HEADER 4X1 2.50MM VERT T/P (MOLEX)	1	J2	Astron	AT-WS21-04-1-0-W
22	ICE-41000611	CONN, MINI DIN/5P/ 14X12.8MM/RA/TIN/ SHIELDED	1	J16	Signatron	2MJ-0003A110
23	ICE-41000069	PIN HEADER, 8X1 0.1	1	CN2	Molex	22-10-2081
24	ICE-41104161	CARD EDGE CONN, 120-PIN30U FCI CEE2X60SV3Z52W	1	J20	FCI	CEE2X60SV3Z52W
25	ICE-41100224	RCA SOCKET, SINGLE KLP-0848A-2 R/A YELLOW	1	J11	Kycon	KLP-0848A-2-Y
26	ICE-41100251	RCA SOCKET, QUADRUPED/ SHIELDED	1	J8	A Plus Products	APA0861M-302-213
27	ICE-41000563	CONN, MODULAR JACK 8P SH RJ417 W/2 BI-COLOR LED	1	J19	Trans-power	RJ417-CL4
28	ICE-41000279	CONN, LOCK HEADER/5X1/ 2MM/VERT/TIN/POL/WHITE	1	J24	JST	B 5B-PH-K-S
29-1	N/A	IC SOCKET, 32-PIN DIP 600MIL (THERMOPLASTIC)	0	U7	AMP	390263-2
30	ICE-60000001	RELAY_SPST, JS1A-12V	1	K1	Aromat	JS1A-12V
31	ICE-18110062	FILTER, EMI 10000PF +-30% 5A THRU' HOLE	5	L1-L5	Panasonic	EXC-EMT103DT
32	ICE-18110061	FILTER, EMI 4000PF +80%-20% 20A SMT	1	L6	Spectrum	PSM4-402Z-20T
33	ICE-43110100	INDUCTOR, 10UH +-10% 3.50OHM 27MHZ SMT 1008	3	L14, L16, L21	Supertech	WI-1008-100K
34	ICE-43119272	INDUCTOR, 2.7UH +-10% 1.70 OHM 55MHZ SMT 1008	2	L18, L19	Supertech	WI-1008-2R7K
35	ICE-43110033	INDUCTOR, 3.3UH +-10%0.8 OHM 7.96MHZ 355MASMT1812	2	L29, L30	Jantek	JWI453232-3R3K
36	ICE-43110119	INDUCTOR, 4.7UH 20% 6.8A SMT L12/W12/H8 VANSONIC	1	L26	Vansonic	VMTDRRI127-4R7M-T
37	ICE-47000009	TRANSISTOR, 2N3904 NPN SOT	3	Q13, Q17, Q19	Motorola	MMBT3904LT1
38	ICE-47011221	TRANSISTOR, 2N7002LT1 P-CH MOSFET SOT23	6	Q4, Q5, Q10, Q18, Q20, Q21	Motorola	2N7002LT1
39	ICE-47000231	TRANSISTOR, HAT1021R P-CH MOSFET 150M SOP-8	5	Q2, Q8, Q9, Q12, Q16	Hitachi	HAT1021R
40	ICE-47000268	TRANSISTOR, FDS6930A DUAL N-CH MOSFET SO8	1	Q15	Fairchild	FDS6930A
41	ICE-47011121	TRANSISTOR, MMBT2222A NPN SOT23	2	Q11, Q14	On-Semi	MMBT2222LT1
42	ICE-47000197	TRANSISTOR, SI2305DS P-CH MOSFET SOT-23	1	Q1	Vishay	SI2305DS-T1

TABLE 27. Parts List for iCEBOX II FlipScreen Controller Board

#	iCEBOX P/N	Description	Qty	Ref. Designator	Mfr	Mfr P/N
43	ICE-44000110	SWITCH, TACT SWITCH 12V50MA 6X6MM 130GF R/A SPST	10	S1-S5, S8-S12	C&K	PTS645VL31
44	ICE-13100906	EPLD, ISPLSI2032VE-110LT44 10NS 44 PIN TQFP WITH S/W INSTALLED	1	U46		
44a	13100906	EPLD, ISPLSI2032VE-110LT44 10NS 44 PIN TQFP	1		Lattice	ISPLSI2032VE-110LT44
44b	ICE-SWPLD-187, Ver 1.3	CPLD S/W	1		Icebox	
45	ICE-13100908	EEPROM, ATC24LC02 512X8 150MIL SERIAL 8PIN SOIC	1	U29	Analog Technology Corp	ATC24LC02
46	ICE-15010052	LOGIC IC, 74LCX08MTC 173MIL 14PIN TSSOP	1	U31	Fairchild	74LCX08MTC
47	ICE-15010024	LOGIC IC, 74LCX245 300MIL 20PIN TSSOP	4	U37, U38, U40, U41	Fairchild	74LCX245MTC
48	ICE-12200065	74LCX32M 150MIL 14PIN SOIC	2	U36, U58	Fairchild	74LCX32M
49	ICE-13100909	EEPROM, AT93C46 64X16 150MIL 2.7V SERIAL 8P SOIC	2	U33, U55	Atmel	AT93C46-10SC-2.7
50	ICE-17000405	IC, ADC 12-BIT SERIAL ADS7845E 16PIN SSOP	1	U49	Burr-brown	ADS7845E
51	ICE-12200064	MICROCONTROLLER, P87C52SBBB/44P/OTP/PQFP/33MHZ	1	U51	Micro-touch	P87C52SBBB
52	15000767	CMOS IC, SN74CBTD3861DBR 220MIL 24P SSOP	2	U3, U4	Texas Instrument	SN74CBTD3861DBR
53	ICE-17000574	IC, FLASH DISK MD2202-D32-V3 32MB 32PIN DIP WITH S/W INSTALLED	1	U7		
53a	ICE-17000574	IC, FLASH DISK MD2202-D32-V3 32MB 32PIN DIP	1		M-System	MD2202-D32-V3
53b	ICE-SWDOC-185, Ver. 2.1.0	PRODUCTION S/W	1		Icebox	
54	ICE-14000811	CHIPSET, DP83815 ETHERNET CONTROLLER 144PIN PQFP	1	U42	NS	DP83815DVNG
55	ICE-17003143	TRANSCEIVER, DS14C535 EIA/TIA-232 28PIN SSOP	2	U53, U54	NS	DS14C535MSA
56	ICE-17000471	IC, DS1621 DIGITAL CTRL THERMOSTAT 8P 150MIL SOIC	1	U21	Dallas	DS16121S/T&R
57	ICE-14001303	CHIPSET, EM8400 DVD/MPEG2 DECODER 208P PQFP	1	U25	Sigma Designs	EM8400

TABLE 27. Parts List for iCEBOX II FlipScreen Controller Board

#	iCEBOX P/N	Description	Qty	Ref. Designator	Mfr	Mfr P/N
58	ICE-17000637	IC, ICS551 CLOCK BUFFER (1-4) 150MIL 8P SOIC	1	U32	Integrated Circuit Sys	ICS551MT
59	ICE-11203022	SGRAM, 256KX32X2/143/ TQFP100/SS/K4G323222A-QC/K	1	U15	Samsung	K4G323222A-QC70T00
60	ICE-11201521	SDRAM, 8X16/100/TSOP54/ SS/K4S281632C-TC1L000/K	4	U8-U11	Samsung	K4S281632C-TC1L000
61	ICE-16000972	REGULATOR IC, LM1117MPX0.8A ADJ SOT-223	1	U17	NS	LM1117MPX-ADJ
62	ICE-16000072	REGULATOR IC, LM317 3-TERMINAL ADJ 1.5A SOT-223	1	U23	NS	LM317EMP
63	ICE-16000056	REGULATOR IC, LM2636M 20PIN 300MIL SOP	1	U44	NS	LM2636M
64	ICE-16000251	POWER AMP, LM386M-1 8PIN SOP	1	U28	NS	LM386MX-1
65	ICE-17000090	IC, LM4548 AC97 REV2 AUDIO CODEC 48PIN TQFP	1	U13	NS	LM4548VH
66	ICE-14000582	CHIPSET, LM4832M AUDIO PROCESSOR 300MIL 28P SOIC	1	U14	NS	LM4832M
67	ICE-16002313	OP AMP, LMC660 CMOS QUAD 14 PIN 150MIL SOIC	1	U6	NS	LMC660CM SO-14
68	ICE-17005005	IC, VOLTAGE MONITOR LP3470 SOT23-5 2.63V	1	U45	NS	LP3470M5-2.63
69	ICE-16000533	REGULATOR IC, LP3961 2.5V 800MA 5P141MIL SOT223	1	U34	NS	LP3961EMPX-2.5
70	ICE-13100907	16K, 2-WIRE CMOS SERIAL EEPROM (HT24LC16, 8 SOP PACKAGE)	1	U35	Holtek	HT24LC16-8SOP,R
71	ICE-17000683	IC, LTC1046 SW CAP VOLT CONVERTER 150MIL 8P SOIC	1	U12	Linear Tech	LTC1046CS8
72	ICE-46302018	SENSOR, INFRARED RECEIVER TSOP1238 38KHZ T/H	1	U52	Vishay	TSOP1238
73	ICE-17000391	IC, MK2703STR PLL AUDIO CLK SYNZER 8P 150MIL SOIC	1	U24	Microclock	MK2703STR
74	ICE-15000223	TTL IC, MM74HC14M 150MIL 14PIN SOIC	1	U30	Philips	PC74HC14D
75	ICE-16002361	OP AMP, NE5532AD8 8PIN 150MIL SOIC	1	U5	Philips	NE5532AD8
76	ICE-14000605	CHIPSET, PC87360 SUPER I/O 128PIN PQFP	1	U48	NS	PC87360-ICK/VLA
77	ICE-15000708	CMOS IC, QS4A101Q SPST SWITCH 16P 150MIL QSOP	1	U27	IDT	DTQS4A101Q8
78	ICE-14000721	CHIPSET, PHILIPS SAA7114H VIDEO DECODER100P LQFP	1	U22	Philips	SAA7114H

TABLE 27. Parts List for iCEBOX II FlipScreen Controller Board

#	iCEBOX P/N	Description	Qty	Ref. Designator	Mfr	Mfr P/N
79	ICE-12102603	PROGRAMMED CPU	1	U26		
80	ICE-17000466	IC, LVDS TRANSMITTER DS90C363MTD 48PIN TSSOP	1	U1	NS	DS90C363MTD
81	ICE-11400116	FLASH, SST39VF020-90-4CNH 512KX8 90NS 32P PLCC WITH S/W INSTALLED	1	U16		
81a	ICE-11400116	FLASH, SST39VF020-90-4CNH 512KX8 90NS 32P PLCC	1		SST	SST39VF020-90-4CNH
81b	ICE-SWROM-186, Ver 2.1	BOOTLOADER S/W	1		Icebox	
82	ICE-16000221	POWER AMP, TDA8569Q 4X25W BTL QUAD CAR RADIO AMP	1	U2	Philips	TDA8569Q
83	ICE-17000711	IC, TDA9851T BTSC STEREO DECODER 300MIL SO24	1	U20	Philips	TDA9851T
84	ICE-53405101	TV TUNER, PHILIPS/FM1236MK2FVM/NTSC/FVM	1	U50	Philips	FM1236MK2/F/VM
85	ICE-17000642	IC, DAC WM8725 99DB STEREO 14P 154MIL SOIC	1	U18	Wolfson Microelect	WM8725ED
86	ICE-45100001	RESONATOR, ZTB503E/503KHZ+-2KHZ/20/2/TH	1	Y4	Waysun	ZTB503E
87	ICE-45200034	OSCILLATOR MODULE, 16MHZ 50PPM HALF SIZE THRU HOLE 4-PIN	1	X4	Interquip	146-16001-101
88	ICE-45200047	OSCILLATOR MODULE, 27.000MHZ HALF SIZE THRU HOLE 4-PIN	1	X1	Waysun	WSE27.000MHz-8DIP
89	ICE-45200046	OSCILLATOR MODULE, 48MHZ 50PPM 3.3V 30PF 4P T/H	1	X3	Waysun	WSE48.000MHz-8DIP
90	ICE-4500081	CRYSTAL, 24.576MHZ 49U3H 30PPM 16PF	0	Y7	HCJ	HQS-3H3-24576-16
91	ICE-45000051	CRYSTAL, 25MHZ 50PPM33PF	1	Y6	Waysun	HC49S25.000MHz30PPM20PF
91-1		CRYSTAL, 25MHZ 50PPM33PF	0	Y6	HCJ	HQS-3H2-25000-33
92	ICE-45000100	CRYSTAL, 27MHZ 49U3H 50PPM 20PF T/H HCJ	1	Y5	QVS	QVS49U-27.000MHZ
92-1		CRYSTAL, 27MHZ 49U3H 50PPM 20PF T/H HCJ	0	Y5	HCJ	HQS-3H2-27000-20
93	ICE-45000065#1	CRYSTAL, 32.768KHZ TUNING FORK 20PPM 12.5PF T/H	1	Y1	Epson	C-001R-32.768K-A
94	ICE-31282616	CHIP CAP, 8200PF 50V X7R 10% 0603	4	C121, C165, C166, C168	AVX	06035C822KAT2A

TABLE 27. Parts List for iCEBOX II FlipScreen Controller Board

#	iCEBOX P/N	Description	Qty	Ref. Designator	Mfr	Mfr P/N
94-1		CHIP CAP, 8200PF 50V X7R 10% 0603	0	C121, C165, C166, C168	Phycomp	2238 586 15635
94-2		CHIP CAP, 8200PF 50V X7R 10% 0603	4	C121, C165, C166, C168	Phycomp	2238 586 16626
95	ICE-31310616	CHIP CAP, 0.01UF 50V X7R +/-10% 0603	20	C157, C220, C329, C339, C373, C374, C381, C383, C384, C403-C406, C421, C425, C426, C428, C455, C457, C459	AVX	06035C103KAT 2A
96	ICE-31322316	CHIP CAP, 22NF 50V X7R 10% 0805	2	C442, C214	AVX	08055C223KAT 2A
96-1		CHIP CAP, 22NF 50V X7R 10% 0805	0	C442, C214	Phycomp	2238 580 15641
96-2		CHIP CAP, 22NF 50V X7R 10% 0805	0	C442, C214	Phycomp	2238 580 16632
97	ICE-31347656	CHIP CAP, 47NF 25V X7R 10% 0603	1	C321	AVX	06033C473KAT 2A
97-1		CHIP CAP, 47NF 25V X7R 10% 0603	0	C321	Murata	GRM188R71E47 3KA01D
98	ICE-31410646	CHIP CAP, 0.1UF 16V X7R 10% 0603	225	, CC1-C4, C6-C8, C10, C11, C13, C15, C23, C29, C30, C32, C33, C39, C40, C42, C50, C52-C67, C77, C85-C94, C100-C107, C110, C114, C122, C125-C129, C131, C133, C135, C137, C138, C143, C150, C154, C156, C169-C173, C176, C179, C186, C188, C190-C192, C198-C200, C203, C204, C215, C225,	AVX	0603YC104KAT 2A
99	ICE-31422317	CHIP CAP, 0.22UF 50V X7R 20% 0805	7	C43, C79, C80, C81, C178, C213, C216	AVX	08055C224MAT 2A
99-1		CHIP CAP, 0.22UF 50V X7R 10% 0805	0	C43, C79, C80, C81, C178, C213, C216	Murata	GRM21BR71H2 24KA01L
100	ICE-31147359	CHIP CAP, 0.47UF 25V Y5V 20% 0805	7	C41, C44, C70, C75, C76, C78, C82	Phycomp	2222 910 19758
102	ICE-31110614	CHIP CAP, 100PF 50V NPO 10% 0603	2	C112, C115	AVX	06035A101JAT 2A
103	ICE-31110963	CHIP CAP, 100PF 1KV NPO +/-5% 1812	1	C396	Philips	2250 004 11536

TABLE 27. Parts List for iCEBOX II FlipScreen Controller Board

#	iCEBOX P/N	Description	Qty	Ref. Designator	Mfr	Mfr P/N
103-1		CHIP CAP, 15PF 50V NPO +/- 5% 0603	0	C136, C492	Phycomp	2238 867 15159
104	ICE-31015613	CHIP CAP, 15PF 50V NPO +/- 5% 0603	2	C136, C492	AVX	06035A150JAT 2A
105	ICE-31115613	CHIP CAP, 150PF 50V NPO5% 0603	17	C448, C462-C477	AVX	06035A151JAT 2A
105-1		CHIP CAP, 150PF 50V NPO5% 0603	0	C448, C462-C477	Phycomp	2238 867 15151
106	ICE-31510349	CHIP CAP, 1UF 16V Y5V 20% 0805	16	C109, C141, C142, C153, C155, C180, C184, C194, C211, C219, C250, C301, C317, C343, C349, C491	Phycomp	2222 780 19763
107	ICE-31122613	CHIP CAP, 220PF 50V NPO5% 0603	30	C25, C26, C27, C28, C71, C72, C73, C74, C108, C139, C244, C506, C507, C543, C544, C545, C546, C547, C449, C450, C451, C452, C548, C549, C550, C551, C552, C553, C554, C555	AVX	06035A221JAT 2A
107-1		CHIP CAP, 220PF 50V NPO5% 0603	0	C25, C26, C27, C28, C71, C72, C73, C74, C108, C139, C244, C506, C507, C543, C544, C545, C546, C547, C449, C450, C451, C452, C548, C549, C550, C551, C552, C553, C554, C555	Phycomp	2238 867 15221
108	ICE-31022653	CHIP CAP, 22PF 25V NPO 5% 0603	8	C205, C206, C252, C254, C272, C273, C313, C333	AVX	06033A220JAT 2A
108-1		CHIP CAP, 22PF 50V NPO 5% 0603	0	C205, C206, C252, C254, C272, C273, C313, C333	Phycomp	2238 867 15229
109	ICE-31133615	CHIP CAP, 330PF 50V X7R+/- 5% 0603	2	C246, C414	AVX	06035C331JAT2 A
109-1		CHIP CAP, 330PF 50V X7R+/- 5% 0603	0	C246, C414	Phycomp	2238 586 15516
109-2		CHIP CAP, 330PF 50V X7R+/- 5% 0603	0	C246, C414	Phycomp	2238 586 16507
110	ICE-31033613	CHIP CAP, 33PF 50V 5% 0603	6	C371, C380, C539-C542	AVX	06035A330JAT 2A
111	ICE-31247616	CHIP CAP, 4700PF 50V X7R 10% 0603	1	C258	AVX	06035C472KAT 2A

TABLE 27. Parts List for iCEBOX II FlipScreen Controller Board

#	iCEBOX P/N	Description	Qty	Ref. Designator	Mfr	Mfr P/N
111-1		CHIP CAP, 4700PF 50V X7R 10% 0603	0	C258	Phycomp	2238 586 15632
111-2		CHIP CAP, 4700PF 50V X7R 10% 0603	0	C258	Phycomp	2238 586 16623
112	ICE-31147616	CHIP CAP, 470PF 50V X7R+- 10% 0603	3	C140, C183, C493	AVX	06035C471KAT 2A
113	ICE-31268616	CHIP CAP, 6.8NF 50V X7R+- 10% 0603	1	C415	AVX	06035C682KAT 2A
113-1		CHIP CAP, 6.8NF 50V X7R+- 10% 0603	0	C415	Phycomp	2238 586 15634
113-2		CHIP CAP, 6.8NF 50V X7R+- 10% 0603	0	C415	Phycomp	2238 586 16625
114	ICE-52301051	BATTERY, MAXELL CR2032 3V 210MAH COIN	1	BAT1	Maxell	CR2032(MAX-ELL)
115	ICE-41001181	CONN, BATTERY HOLDER TOP ENTRY TIN PLATED	1	BAT1	Tekcon	1641-811-1
116	ICE-3381021A	E CAP, 1000UF 25V 20% @85C L20/D12.5/P5 RADIAL	2	C31, C49	Samwha	1SG1EWB108M 12020
117	ICE-32710003	TANT CAP, 100UF 10V 10%SMT CASE D	4	C284, C286, C291, C293	AVX	TAJD107K010R NJ
118	ICE-37322001	E CAP, 100UF 16V 20%@85C L11/D6.3/P2.5 RADIAL	9	C46, C48, C83, C84, C209, C221, C245, C269, C460	Samwha	SG1C107M6L01 1NA
118-1		E CAP, 100UF 16V 20%@85C L7/D6.3/R2.5 RADIAL	0	C46, C48, C83, C84, C209, C221, C245, C269, C460	Samwha	SS1C107M6L00 7NC
119	ICE-37322007	E CAP, 100UF 16V 20%@85C	1	C458	Samwha	SS1C107M6L00
120	ICE-37322002	E CAP, 100UF 16V D6.3/ L11MM RADIAL LOW ESR	4	C177, C181, C316, C338	Samwha	WD1C107M6L0 11NB
121	ICE-37322005	E CAP, 220UF 16V RADIAL LOW ESR	1	C359	Samwha	WD1CHB227M A46L011
122	ICE-32061001	TANT CAP, 10UF 10V SMT 20% CASE B	17	C158, C174, C189, C193, C227, C248, C262, C270, C277, C304, C322, C326, C360, C375, C419, C420, C438	AVX	TAJB106K010R NJ
123	ICE-3361041A	E CAP, 10UF 50V 20% @85C L11/D5/P2 RADIAL	27	C5, C16, C47, C113, C116, C119, C120, C123, C124, C162-C164, C167, C201, C202, C208, C218, C223, C265, C267, C312, C355, C411, C412, C439, C440, C490	Samwha	1SG1HAB106M 05011
124	ICE-3351041A	E CAP, 1UF 50V 20% @85C L11/D5/P2 RADIAL	1	C210	Samwha	1SG1HAB105M 05011

TABLE 27. Parts List for iCEBOX II FlipScreen Controller Board

#	iCEBOX P/N	Description	Qty	Ref. Designator	Mfr	Mfr P/N
125	ICE-3352241A	E CAP, 2.2UF 50V 20% @85C L11/D5/P2.0 RADIAL	4	C182, C185, C217, C512	Samwha	1SG1HAB225M 05011
125-1		E CAP, 2.2UF RADIAL	0	C182, C185, C217, C512	Samwha	1RG1HAB225M 05011
127	ICE-3382221A	E CAP, 2200UF 25V 20% @85C L25/D16/P7.5 RADIAL	1	C159	Samwha	1SG1EWB228M 16025
127-1		E CAP, 2200UF 35V 20%@85C L25/D16/P7.5 RADIAL	0	C159	Samwha	SD1V228M160 25BB
128	ICE-3362241A	E CAP, 22UF 50V 20%@85C L11/D5/P2.0 RADIAL	3	C347, C352, C484	Samwha	1SG1HAB226M 05011
128-1		E CAP, 22UF 50V 20%@105C L11/D5/P2.0 RADIAL	0	C347, C352, C484	Samwha	RG1H226M050 11BB
129	ICE-32622001	TANT CAP, 22UF 6.3V 10%@85C SMT CASE B	10	C9, C12, C24, C130, C134, C175, C302, C318, C341, C350	AVX	TAJB226K010R NJ
130	ICE-33733115	E CAP, 330UF 16V 20% 0.1 RADIAL	4	C319, C340, C344, C346	Samwha	1SG1CVB337M AH0811M
131	ICE-3354741A	E CAP, 4.7UF 50V 20% @85C L11/D5/P2 RADIAL	1	C207	Samwha	1SG1HAB475M 05011
131-1		E CAP, 4.7UF 63V 20% @85C L11/D5/P2 RADIAL	0	C207	Samwha	1SG1JAB475M AU05011
132	ICE-33747165	E CAP, 470UF 16V 20%105C 0.2" H=12.5 RDL ESR=90M	1	C441	Samwha	1RZ1CHB477M AN1012M
134	ICE-3364721A	E CAP, 47UF 25V 20%@85C L11/D5/P2.0 RADIAL	11	C45, C69, C111, C117, C118, C152, C160, C224, C324, C337, C445	Samwha	1SG1EAB476M AU05011
135	ICE-22500001	CHIP RES, 0 OHM 1/16W 5% 0603	48	R19,R50,R61,R63,R 107,R126,R170,R1 85,R198,R219,R22 4,R230,R236,R273, R280,R282- R284,R291,R298,R 300,R314,R325,R3 28,R329,R335,R34 5,R347, R358,R359,R361,R 369, C369, C370, C397, C398, C303, C505, C508, C509,RC1,RC2,RC3 ,RC4,RC5,RC6,RC7, RC8	Firstronics	RGC168J000
136	ICE-22511332	CHIP RES, 1.33K OHM 1/16W 1% 0603	1	R151	Firstronics	RGC168F1331
136-1		CHIP RES, 1.33K OHM 1/16W 1% 0603	0	R151	Phycomp	2322 704 61332

TABLE 27. Parts List for iCEBOX II FlipScreen Controller Board

#	iCEBOX P/N	Description	Qty	Ref. Designator	Mfr	Mfr P/N
137	ICE-22520151	CHIP RES, 1.5K OHM 1/16W 5% 0603	14	R164-R167,R169,R176,R193,R195,R200-R202,R214,R226,R227	Firstronics	RGC168J152
138	ICE-22500101	CHIP RES, 10 OHM 1/16W 5% 0603	14	R38,R105,R127,R136,R186,R190,R191, R206,R278,R279,R388-R391	Firstronics	RGC168J100
139	ICE-22501502	CHIP RES, 150 OHM 1/16W1% 0603	1	R94	Firstronics	RGC168J151
139-1		CHIP RES, 150 OHM 1/16W1% 0603	0	R94	Phycomp	2322 704 61501
140	ICE-22510101	CHIP RES, 100 OHM 1/16W 5% 0603	17	R2,R3,R10,R11,R30-R33,R36,R96,R112,R121,R135,R153,R264,R341,R337	Firstronics	RGC168J101
141	ICE-22540101	CHIP RES, 100K OHM 1/16W 5% 0603	16	R1,R6,R8,R48,R66,R76,R78,R98,R100,R134,R157,R158,R323,R330,R371,R372	Firstronics	RGC168J104
142	ICE-22530101	CHIP RES, 10K OHM 1/16W 5% 0603	35	R24,R37,R40,R43,R46,R47,R51,R55,R56,R59,R60,R91,R97,R103,R110,R113,R154,R159,R188,R189,R204,R205,R234,R237,R247,R266,R305-R307,R342,R349,R350,R352,R373,R374	Firstronics	RGC168J103
143	ICE-22560101	CHIP RES, 10M OHM 1/16W5% 0603	1	R124	Firstronics	RGC168J106
144	ICE-22540121	CHIP RES, 120K OHM 1/16W5% 0603	1	R125	Firstronics	RGC168J124
145	ICE-22530151	CHIP RES, 15K OHM 1/16W5% 0603	1	R152	Firstronics	RGC168J153
146	ICE-22500181	CHIP RES, 18 OHM 1/16W 5% 0603	2	R150,R312	Firstronics	RGC168J180
147	ICE-22520101	CHIP RES, 1K OHM 1/16W 5% 0603	23	R9,R22,R26,R34,R42,R58,R95,R119,R122,R133,R140,R148,R160,R177,R203,R218, R228,R267,R285,R269,R281,R346,R356	Firstronics	RGC168J102

TABLE 27. Parts List for iCEBOX II FlipScreen Controller Board

#	iCEBOX P/N	Description	Qty	Ref. Designator	Mfr	Mfr P/N
148	ICE-22520221	CHIP RES, 2.2K OHM 1/16W 5% 0603	8	R39,R41,R52-R54,R57,R104,R232	Firstronics	RGC168J222
149	ICE-22530201	CHIP RES, 20K OHM 1/16W5% 0603	1	R88	Firstronics	RGC168J203
150	ICE-22500221	CHIP RES, 22 OHM 1/16W 5% 0603	2	R89, R351	Firstronics	RGC168J220
151	ICE-22510221	CHIP RES, 220 OHM 1/16W5% 0603	4	R18,R21,R77,R99	Firstronics	RGC168J221
152	ICE-22530221	CHIP RES, 22K OHM 1/16W5% 0603	3	R82, R84, R333	Firstronics	RGC168J223
154	ICE-22512002	CHIP RES, 2K OHM 1/16W 1% 0603	1	R139	Firstronics	RGC168F2001
155	ICE-22520331	CHIP RES, 3.3K OHM 1/16W 5% 0805	1	R137	Firstronics	RGC210J332
156	ICE-22500331	CHIP RES, 33 OHM 1/16W 5% 0603	27	R12-R17,R115,R161,R162,R171,R181,R182,R194,R196,R211,R212,R217,R241-R243,R259,R265,R302,R308,R111,R343,R392	Firstronics	RGC168J330
157	ICE-22503322	CHIP RES, 332 OHM 1/16W 1% 0603	3	R271, R286, R138	Firstronics	RGC168F3320
157-1		CHIP RES, 332 OHM 1/16W 1% 0603	0	R271, R286, R138	Phycomp	2322 704 63321
158	ICE-22520301	CHIP RES, 3K OHM 1/16W 5% 0603	1	R293	Firstronics	RGC168J302
159	ICE-22530331	CHIP RES, 33K OHM 1/16W5% 0603	1	R375	Firstronics	RGC168J333
160	ICE-22520471	CHIP RES, 4.7K OHM 1/16W 5% 0603	24	R7,R27,R67,R118,R141-R144,R156,R209,R249,R251,R252,R258,R260,R262,R292,R309,R316,R318,R332,R354,R320,R321	Firstronics	RGC168J472
161	ICE-22500471	CHIP RES, 47 OHM 1/16W 5% 0603	6	R270,R272,R289,R290,R336,R363	Firstronics	RGC168J470
162	ICE-22510471	CHIP RES, 470 OHM 1/16W5% 0603	3	R29, R173, R229	Firstronics	RGC168J471
163	ICE-22530471	CHIP RES, 47K OHM 1/16W5% 0603	2	R80, R83	Firstronics	RGC168J473
164	ICE-22500561	CHIP RES, 56 OHM 1/16W 5% 0603	2	R149,R311	Firstronics	RGC168J560

TABLE 27. Parts List for iCEBOX II FlipScreen Controller Board

#	iCEBOX P/N	Description	Qty	Ref. Designator	Mfr	Mfr P/N
165	ICE-22500622	CHIP RES, 62 OHM 1/16W 1% 0603	1	R207	Firstronics	RGC168F6200
166	ICE-22546801	CHIP RES, 680K OHM 1/16W 5% 0603	1	R87	Firstronics	RGC168J684
167	ICE-22500751	CHIP RES, 75 OHM 1/16W 5% 0603	6	R221, R246, R248,R23,R25,R28	Firstronics	RGC168J750
168	ICE-22B28252	CHIP RES, 82.5K OHM 1/10W 1% 0603	2	R295, R296	Firstronics	RGC168F8252
169	ICE-22599093	CHIP RES, 88.7 OHM 1% 0603	1	R92	Firstronics	RGC168F8870
170	ICE-22B19312	CHIP RES, 9.31K OHM 1/10W 1% 0603	1	R299	Firstronics	RGC168F9311
171	ICE-22599092	CHIP RES, 90.9 OHM 1/16W 1% 0603	1	R294	Firstronics	RGC168F9090
172	ICE-23201033	CHIP NET RES, 10 OHM ISO-LATED 8P 5% NCA4R	2	RA31,RA44	Hosonic	NCA4R100JR
173	ICE-23203333	CHIP NET RES, 33 OHM ISO-LATED 8P 5% NCA4R	24	RA1-RA8,RA21-RA23,RA34-RA39,RA46,RA51, RA25,RA18,RA11, RA12,RA17	Hosonic	NCA4R330JR
174	ICE-23224733	CHIP NET RES, 4.7K OHM ISOLATED 8P 5% NCA4R	14	RA27,RA28,RA32, RA33,RA45,RA47-RA50,RA52-RA56	Hosonic	NCA4R472JR
175	ICE-PCBCT-175-E	PCB 10.213" X 9.028" X 0.062" 8L ICE-PCBCT-175-E	1		DPMC	10.213" X 9.028" X 0.062"
176		JUMPER, 2 PIN, .100 SPACING	4	J13(2-3),J14(1-2),J15(1-2),J17(2-3)	Oupiin	2006-B
177		CRYSTAL INSULATOR	1	Y6	Bivar	C1-192-028

Modem

TABLE 28. Parts List for iCEBOX II FlipScreen Modem

#	iCEBOX P/N	Description	Qty	Ref. Designator	Mfr	Mfr P/N
1	ICE-16000059	REGULATOR IC, LM3526 8PIN 150MIL SOIC	1	U1	National Semi	LM3526MX-H
2	ICE-14001301	CHIPSET, CONEXANT CX88168-11 MODEM 128PIN TQFP	1	U47	Conexant	CX88168-11
3	ICE-14001302	CHIPSET, CONEXANT 20463-11SMARTS DAA 32PIN TQFP	1	U2	Conexant	20463-11
4	ICE-13100907	16K 2-wire CMOS Serial EEPROM (HT24LC16, 8 SOP package)	1	U43	Holtek	HT24LC16-8SOP,R
5	ICE-46302018	SENSOR, INFRARED RECEIVER TSOP1238 38KHZ T/H	1	U3	Vishay	TSOP1238
6	ICE-42000009	VARISTOR, VZ07D151KBS ZINC OXIDE 5MM 1200A 165V	1	RV1	Sincera	VZ07D151KBS
7	ICE-23300001	THYRISTOR TISP4350H3BJR	3	V1,V2,V3	Power Innovation	TISP4350H3BJR
8	ICE-43500064	TRANSFORMER, E&E 835-00021T 2.3UH 0.36OHM 8P SMD	1	T1	E & E	835-00021T
9	ICE-47000301	RECTIFIER, BRIDGE MB6S 0.5A 600V 150MIL SOIC-4	1	B1	Fairchild	MB6S
10	ICE-47000211	TRANSISTOR, CMPTA44 NPN HIGH VOLTAGE 450V 350mW SOT-23	3	Q1,Q2,Q3	Central Semi	CMPTA44 TR
11	ICE-47000212	TRANSISTOR, CZTA44 NPN HIGH VOLTAGE450V SOT223	1	Q4	Central Semi	CZTA44 TR
12	ICE-47000785	ZENER DIODE, MMBZ5234BLT1 6.2V 20MA SOT-23	1	D1	On-Semi	MMBZ5234BLT1
13	ICE-47000506	DIODE, SCHOTTKY BAR43 1V 100mA SOT-23	1	D2	SGS	BAR43FILM
14	ICE-42000215	FUSE, POLYFUSE TS600-200-RA-B-0.5-2 0.2A 60V SMT	2	F1,F2	Raychem	TS600-200-RA-B-0.5
15	ICE-41000565	CONN, MODULAR JACK/6P/RA/TP/POL/NONSHIELD	2	J1,J2	Kycon	GM-N-64
16	ICE-41104159	CONN, DUAL STACKUP USB PORT 8PIN JST	1	J3	JST	UBA-4RS-D10T-1
17	ICE-41000281	CONN, LOCK HEADER/25X2/2MM/RA/TIN/POL/BLACK	1	J4	Molex	87333-5020

TABLE 28. Parts List for iCEBOX II FlipScreen Modem

#	iCEBOX P/N	Description	Qty	Ref. Designator	Mfr	Mfr P/N
18	ICE-43500067	FERRITE BEAD, 120OHM 100MHZ 200MA SMT0805	8	L1,L2,L4-L9	Kingcore	FBM-11-201209-121T
19	ICE-43500065	29F0418-1SR	1	L10	Steward	29F0418-1SR
20	ICE-31410646	CHIP CAP, 0.1uF 16V X7R10% 0603	22	C1, C7, C16, C35, C40, C31, C45, C46, C21, C386, C387, C389-C391, C407, C408, C429-C434	AVX	0603YC104KAT2A
22	ICE-31210616	CHIP CAP, 1nF 50V X7R 10% 0603	3	C18, C20, C34	AVX	06035C102KAT2A
23	ICE-31033613	CHIP CAP, 33pF 50V 5% 0603	2	C409, C410	AVX	06035A330JAT2A
24	ICE-31010613	CHIP CAP, 10pF 50V NPO +/-5% 0603	3	C32, C36, C39	AVX	06035A100JAT2A
25	ICE-31110614	CHIP CAP, 100pF 50V NPO10% 0603	2	C37, C23	AVX	06035A101JAT2A
27	ICE-31115316	CHIP CAP, 150pF 50V 10%0805	1	C14	AVX	08055A151JAT2A
28	ICE-31347116	CHIP CAP, 47NF 50V X7R +/-10% 1206	2	C19, C22	Compostar	CC1206X473K3OST
29	ICE-31233116	CHIP CAP, 3.3nF 50V 10%1206	1	C30	AVX	12065C332KAT2A
30	ICE-31333116	CHIP CAP, 33nF 50V 10% 1206	2	C10, C13	AVX	12065C333KAT2A
31	ICE-31010963	CHIP CAP, 10PF 1KV NPO +/-5% 1812	2	C42, C43	AVX	1812AA100JAT2A
32	ICE-31210966	CHIP CAP, 1000pF 2000V X7R 10% 1812	2	C15, C33	AVX	1812GC102KAT2A
33	ICE-3371011A	E CAP, 100UF 16V 20%@85C L11/D6.3/P2.5 RADIAL	3	C2, C3, C4	Samwha	1SG1CVB107MAU6L011
34	ICE-3362241A	E CAP, 22UF 50V 20%@85CL11/D5/P2.0 RADIAL	1	C6	Samwha	1SG1HAB226M05011
35	ICE-3364721A	E CAP, 47UF 25V 20%@85C L11/D5/P2.0 RADIAL	1	C44	Samwha	1SG1EAB476MAU05011
36	ICE-32610101	TANT CAP, 10uF 16V 10%@85C SMT CASE B	3	C17, C41, C388	AVX	TAJB106K016RNJ
37	ICE-22500471	CHIP RES, 47 OHM 1/16W 5% 0603	1	R1	Firstronics	RGC168J470
38	ICE-22550101	CHIP RES, 1M OHM 1/16W 5% 0603	2	R7,R9	Firstronics	RGC168J105
39	ICE-22530101	CHIP RES, 10K OHM 1/16W5% 0603	8	R10,R11,R12,R13,R255,R257,R276,R277	Firstronics	RGC168J103
40	ICE-22500101	CHIP RES, 10 OHM 1/16W 5% 0603	1	R38	Firstronics	RGC168J100

TABLE 28. Parts List for iCEBOX II FlipScreen Modem

#	iCEBOX P/N	Description	Qty	Ref. Designator	Mfr	Mfr P/N
41	ICE-22210151	CHIP RES,150 OHM 1/10W 5% 0805	1	R21	Firstronics	RGC210J151
42	ICE-22B40271	CHIP RES, 270K OHM 1/10W 5% 0603	1	R22	Firstronics	RGC168J274
43	ICE-22530511	CHIP RES, 51K OHM 1/16W5% 0603	1	R25	Firstronics	RGC168J513
44	ICE-22510101	CHIP RES, 100 OHM 1/16W5% 0603	1	R27	Firstronics	RGC168J101
45	ICE-22500001	CHIP RES, 0 OHM 1/16W 5% 0603	4	R30,R36,R41,R303	Firstronics	RGC168J000
46	ICE-22520101	CHIP RES, 1K OHM 1/16W 5% 0603	4	R33,R34,R35,R40	Firstronics	RGC168J102
47	ICE-22520471	CHIP RES, 4.7K OHM 1/16W 5% 0603	1	R37	Firstronics	RGC168J472
48	ICE-22A50681	CHIP RES, 6.8M OHM 1/4W 5% 1206	1	R14	Firstronics	RGC315J685
49	ICE-22B31002	CHIP RES, 100K OHM 1/10W 1% 0603	1	R28	Firstronics	RGC168F1003
50	ICE-22B33322	CHIP RES, 332K OHM 1/10W 1% 0603	1	R4	Firstronics	RGC168F3323
51	ICE-22B31432	CHIP RES, 143K OHM 1/10W 1% 0603	1	R5	Firstronics	RGC168F1433
52	ICE-22B23322#1	CHIP RES, 33.2K OHM 1/10W 1% 0603	1	R32	Firstronics	RGC168F3322
53	ICE-22B35762	CHIP RES, 576K OHM 1/10W 1% 0603	1	R23	Firstronics	RGC168F5763
54	ICE-22B38252	CHIP RES, 825K OHM 1/10W 1% 0603	1	R20	Firstronics	RGC168F8253
55	ICE-22A34752	CHIP RES, 475K OHM 1/4W 1% 1206	1	R29	Firstronics	RGC315F4753
56	ICE-22A35622	CHIP RES, 562K OHM 1/4W 1% 1206	1	R2	Firstronics	RGC315F5623
57	ICE-22A31002	CHIP RES, 100K OHM 1/4W 1% 1206	1	R3	Firstronics	RGC315F1003
58	ICE-22A33482	CHIP RES, 348K OHM 1/4W 1% 1206	1	R19	Firstronics	RGC315F3483
59	ICE-22400241	CHIP RES, 24 OHM 1/2W 5% 2010	1	R39	Firstronics	RGC525F24R0
60	ICE-45000099	CRYSTAL, 28.224MHZ 49U3H 50PPM 18PF T/H HCJ	1	Y7	HCJ	HQS-3H2-28224-18
61	ICE-PCBCT-177-D	PCB, SMART DAA ICE-PCBCT-177-D 6.3" X2.461" X 0.061" (4LAYER)	1		DPMC	6.3" x 7.983" X 0.061" X 2L
62	ICE-31047614	CHIP CAP, 220pF 50V NPO 5% 0603	4	C5, C8, C435, C436	AVX	06035A221JAT2A

TABLE 28. Parts List for iCEBOX II FlipScreen Modem

#	iCEBOX P/N	Description	Qty	Ref. Designator	Mfr	Mfr P/N
62-1		CHIP CAP, 220pF 50V NPO 5% 0603	0	C5, C8, C435, C436		

SMU

TABLE 29. Parts List iCEBOX II FlipScreen SMU

Item	Type Code	Qty	iCEBOX P/N	Description
1	ASSY	1	ICE-FLIP-090	FlipScreen Top Assembly
2	ASSY	1	ICE-FLIP-080	Chassis Top Assembly
3	ASSY	1	ICE-CHAS-069	Chassis Weldment
4	POA	1	ICE-CHAS-003	Chassis Base
5	POA	1	ICE-CHAS-008	Chassis Front Panel
6	POA	1	ICE-CHAS-005	Chassis Rear Panel
7	POA	1	ICE-CHAS-004	Chassis Bulkhead
8	ASSY	1	ICE-FC-047	Front Cover Assembly
9	PIM	1	ICE-FC-048	Front Cover Molded
10	PIM	1	ICE-FC-053	Pushbutton Actuator 9 Position
11	PIM	1	ICE-FC-063	DVD Tray Front Cover
12	PIM	1	ICE-FC-064	Light Pipe
13	PIM	1	ICE-FC-065	IR Window
14	CUST	1	CMI-FC-066	Microphone With Connector
15	HRDW	2	ICE-MISC-148	M3 X 0.5-6mm Phil Pan Head Screw
16	CUST	0	10680 or 10699	Unit Front Panel Graphics
17	ASSY	1	ICE-DISP-035	Display Assembly
18	PIM	1	ICE-DISP-030	Front Display Cover
19	PIM	1	ICE-DISP-036	Rear Display Cover
20	SM	2	ICE-DISP-116	Display Bracket 1
21	SM	2	ICE-DISP-117	Display Bracket 2
22	HRDW	2	ICE-MISC-166	Screw, Pan Head, Phil, M3 X 0.5 10mm Machine
23	HRDW	4	ICE-MISC-167	Screw, Pan Philip Head M2.6x0.5x5 Pt
24	HRDW	4	ICE-MISC-192	Screw, Pan Philip Head M2.6x0.5x15 Pt
25	HRDW	6	ICE-MISC-168	Screw, Flat Head, Phil, M3 X 0.5 20mm Machine, Black
26	HRDW	4	ICE-MISC-148	M3 X 0.5-6mm Phil Pan Head Screw
27	PURCH	1	ICE-DISP-120	Touch Screen With Gasket
28	PURCH	1	ICE-DISP-121	12.1" LCD Sanyo Panel
29	SM	1	ICE-DISP-038	Display Stiffner - Metal
30	ASSY	1	ICE-PIV-034	Pivot Assembly
31	MACH	1	CMI-PIV-023	Pivot Center Core
32	PURCH	4	CMI-PIV-019	Thrust Bearing Washer
33	PURCH	2	CMI-PIV-018	Thrust Needle Roller Bearing
34	MACH	1	CMI-PIV-020	Pivot Support Plate
35	MACH	1	CMI-PIV-022	Pivot Center Ring
36	HRDW	2	CMI-SRW-00002	M3 X 0.5-3.0 Flat Point Socket Setscrew

Type Codes: SM = Sheet Metal, PIM = Plastic Injection Molded, MACH = Machined/Fabricated, HRDW = Hardware, PURCH = Purchased Part, CUST = Custom Part, ASSY = Assembly

TABLE 29. Parts List iCEBOX II FlipScreen SMU

Item	Type Code	Qty	iCEBOX P/N	Description
37	HRDW	2	CMI-SRW-00003	M3 X 0.5-6.0 Flat Point Socket Setscrew
38	MACH	1	ICE-PIV-021	Pivot Block
39	POA		CMI-PIV-199	Pivot Extrusion
40	PURCH	2	ICE-PIV-00204	Friction Hinge
42	CUST	1	ICE-DISP-133	LVDS Cable
43	CUST	1	ICE-DISP-132	Backlight Inverter Cable
44	CUST	1	ICE-DISP-123	Touch Screen Cable
45	HRDW	4	ICE-MISC-209	M3 X 0.5-16mm Phil Pan Head Screw
46	HRDW	4	CMI-NUT-00002	M3 X 0.5-0.8 Hex Nut (Zinc Plated)
48	HRDW	8	ICE-MISC-213	M3 Cone Washer
49	CUST	1	ICE-PCBBI-131	Backlight Inverter Board Assembly
50	HRDW	2	CMI-EMI-00002	EMI Gasket
51	CUST	1	ICE-PCBLV-130	LVDS PCBA
52	ASSY	1	ICE-CPCB-070	Controller Assembly
53	SM	1	ICE-CPCB-007	Controller Rear Panel
54		8		PEM M3 X 0.5 Cls-0
55	CUST	0	10682 or 10665	Unit Back Panel Graphics
56	CUST	1	ICE-EMI-00197	Grounding Gasket
55	CUST	1	ICE-PCBCT-125	Serial Cable With Connector
56	HRDW	1		Insulating Tape
57	CUST	1	ICE-EMI-00198	Filter Wafer
58	SM	1	CMI-CPCB-006	Controller Pcb Support Assy
59	POA	6		PEM M3 X 0.5-sos-6
60	SM	4	CMI-CPCB-014	Rear Panel Bracket
61	MACH	1	CMI-CPCB-099	Modem PCB Bracket
62	CUST	1	ICE-PCBCT-129	Controller PCB Assembly
63	CUST	1	ICE-PCBCT-128	Modem PCB Assembly
64	HRDW	13	ICE-MISC-148	M3 X 0.5-6mm Phil Pan Head Screw
65	HRDW	1	ICE-EMI-191	EMI Gasket 20mm
66	HRDW	1	CMI-SRW-00011	PT KA30 X 10 Oval Head Screw
67	HRDW	2	CMI-NUT-00002	M3 X 0.5-0.8 Hex Nut (Zinc Plated)
68	HRDW	2	CMI-WSH-00003	M3 [Din 125] Flat Washer (Zinc Plated)
69	HRDW	2	CMI-NUT-00004	Tuner Nut
70	HRDW	2	CMI-WSH-00006	Flat Washer
71	HRDW	2	CMI-WSH-00005	Wavy Washer
72	SM	1	CMI-CPCB-012	Amplifier Heat Sink Clip
73	CUST	1	CMI-CPCB-072	Amplifier Heat Sink Pad

Type Codes: SM = Sheet Metal, PIM = Plastic Injection Molded, MACH = Machined/Fabricated, HRDW = Hardware, PURCH = Purchased Part, CUST = Custom Part, ASSY = Assembly

TABLE 29. Parts List iCEBOX II FlipScreen SMU

Item	Type Code	Qty	iCEBOX P/N	Description
74	PIM	1	ICE-DISP-200	Molded Latch - Single
75	SM	1	ICE-CHAS-009	Mounting Plate-dvd
76	PURCH	1	ICE-DVD-127	Raymedia Drive
77	CUST	1	CMI-CPCB-101	ATAPI DVD 40 Conductor Cable
78	CUST	1	CMI-CPCB-102	ATAPI DVD Power Cable
79	PURCH	1	CMI-CHAS-100	Fan-bulkhead
80	SM	1	CMI-CHAS-076	Pivot Shield
81	HRDW	3	ICE-MISC-169	M3 X 0.5-5 Phil Pan Head Screw
82	ASSY	1	CMI-PS-077	Power Supply Assembly - CMI
83	POA	1	CMI-CHAS-015	Power Supply Frame
84	POA	4		PEM SOS-3.5M3-6
85	POA	1	CMI-PS-094	Power Supply Module
86	POA	1	CMI-PS-095	Power Input Module
87	POA	1	CMI-PS-096	Mains Switch
88	POA	7	CMI-PS-097	Grounding Clip
89	POA	4	CMI-SRW-00014	M3 X 0.5-5 Socket Button Head Cap Screw
90	POA	2	CMI-SRW-00015	M2.5 X 0.45-8 Phil Pan Head Screw
91	POA	2	CMI-NUT-00001	M2.5 X 0.45-0.8 Hex Nut (Zinc Plated)
92	POA	2	CMI-WSH-00001	M2.5 [Din 125] Flat Washer (Zinc Plated)
93	ASSY	1	CMI-CHAS-109	Chassis Cover With Guide Rails
94	SM	2	CMI-CHAS-106	Guide Rail - Chassis Cover
95	SM	1	CMI-CHAS-002	Chassis Cover With Guide Rails
96	HRDW	3	CMI-SRW-00025	M3.5 X 0.6 -6 Phil Flat Head Screw
97	HRDW	14	CMI-SRW-00018	M3 X 0.5-5 Phil Flat Head Screw
98	HRDW	4	ICE-MISC-179	M3 X 0.5-14 Phil Pan Head Screw
99	HRDW	2	CMI-NUT-00002	M3 X 0.5-0.8 Hex Nut (Zinc Plated)
100	HRDW	2	ICE-MISC-196	Split Lock Washer, M3 (Stainless Steel)
101	HRDW	26	ICE-MISC-148	M3 X 0.5-6mm Phil Pan Head Screw
102	HRDW	1	CMI-FGC-00001	Clamp
103	HRDW	1	ICE-MISC-190	Cable Clamp
104	HRDW	1		Aluminum Tape
105	ASSY	2	CMI-SPKR-081	Speaker Assembly
106	POA	1	CMI-SPKR-082	Speaker Enclosure Base-cmi
107	POA	1	CMI-SPKR-083	Speaker Enclosure Top-cmi
108	POA	1	ICE-SPKR-084	Speaker Enclosure Front Cover
109	POA	1	ICE-SPKR-092	Speaker Grill
110	POA	8	CMI-SPKR-085	Speaker Enclosure Screw Cover

Type Codes: SM = Sheet Metal, PIM = Plastic Injection Molded, MACH = Machined/Fabricated, HRDW = Hardware, PURCH = Purchased Part, CUST = Custom Part, ASSY = Assembly

TABLE 29. Parts List iCEBOX II FlipScreen SMU

Item	Type Code	Qty	iCEBOX P/N	Description
111	POA	2	CMI-SPKR-086	Speaker Mount
112	POA	1	CMI-SPKR-087	Speaker-coax(Mid-range/tweeter)
113	POA	1	CMI-SPKR-088	Speaker-bass
114	POA	1	CMI-SPKR-089	Speaker Cable Assembly
115	POA	16	CMI-SRW-00023	PT KA30 X 8mm Oval Head Screw
116	SM	2	CMI-CHAS-016	Speaker Mounting Bracket
117	HRDW	8	ICE-MISC-180	PT KA25 X 8 Flt Head Screw
118	HRDW	8	CMI-SRW-00018	M3 X 0.5 -5 Phil Flat Head Screw
119	ASSY	1	CMI-CHAS-108	System Mounting Plate Assembly
120	SM	2	CMI-CHAS-105	Guide Rail - Mounting Plate
121	SM	1	CMI-CHAS-107	System Mounting Plate
122	MACH	2	CMI-CHAS-091	Chassis Locking Screw
123	HRDW	2	CMI-WSH-00002	M4 [Din 6797 Type J] Internal Toothed Lock Washer
124	ASSY	1	ICE-CHAS-211	Cable Tray Assembly
125	SM	1	ICE-CHAS-104	Cable Tray
126	HRDW	4	ICE-MISC-214	Pine Tree Fastener
128	ASSY	1	ICE-MISC-126	Printed Agency Rating Label
129	CUST	3	10675	Serial Number Adhesive Label
130	CUST	1	10672	Screen Cling Warning Label
131	CUST	1	10673	Mounting Bracket Warning Adhesive

Type Codes: SM = Sheet Metal, PIM = Plastic Injection Molded, MACH = Machined/Fabricated, HRDW = Hardware, PURCH = Purchased Part, CUST = Custom Part, ASSY = Assembly

Accessories

TABLE 30. Parts List for iCEBOX II FlipScreen Accessories

Item	Type Code	Qty	iCEBOX P/N	Description
1	PURCH	1	ICE-MISC-170	Accessories Clamshell
2	ASSY	1	30032	Keyboard (Black)
3	PURCH	2	CMI-BTY-00001	AA Alkaline Batteries
4	ASSY	1	30033	Remote Control (Black)
5	PURCH	2	CMI-BTY-00002	AAA Alkaline Batteries
6	CUST	1	ICE-MISC-149	Power Cord (Black)
7	PURCH	1	CMI-CBL-00002	Telephone Line Cord (Black)
8	PURCH	1	ICE-MISC-171	Acetate Bag For Documents & CD (Clear)
9	CUST	1	10524	Remote And Keyboard Guide
10	CUST	1	10533	Owners Manual
11	CUST	1	10498	Quick Start Guide
12	CUST	1	10664	Installation Template
13	CUST	1	10671	Connectivity Template
14	CUST	1	10674	Installation Manual
15	CUST	1	1052	Registration Letter
16	CUST	1	1053	Registration Letter Sticker
17	CSG	0	10697	Update CD Sleeve
18	CSG	0	10696	Update CD Disc With CD Label Graphics
19	PURCH	1	ICE-MISC-174	TV Tuner Right Angle F Connector Male/Female
20	CSG	1	10666	FM Antenna Instruction Sheet
21	PURCH	1	ICE-MISC-193	Dipole Antenna, 58" Element, Spade Tongue Terminals
22	PURCH	1	ICE-MISC-194	75 Ohm Downlead To 300 Ohm Antenna Transformer
23	PURCH	2	ICE-FC-150	Stylus

Type Codes: SM = Sheet Metal, PIM = Plastic Injection Molded, MACH = Machined/Fabricated, HRDW = Hardware, EM = Rubber Molded, PURCH = Purchased Part, CUST = Custom Part, ASSY = Assembly, CSG = Customer Supplied Goods
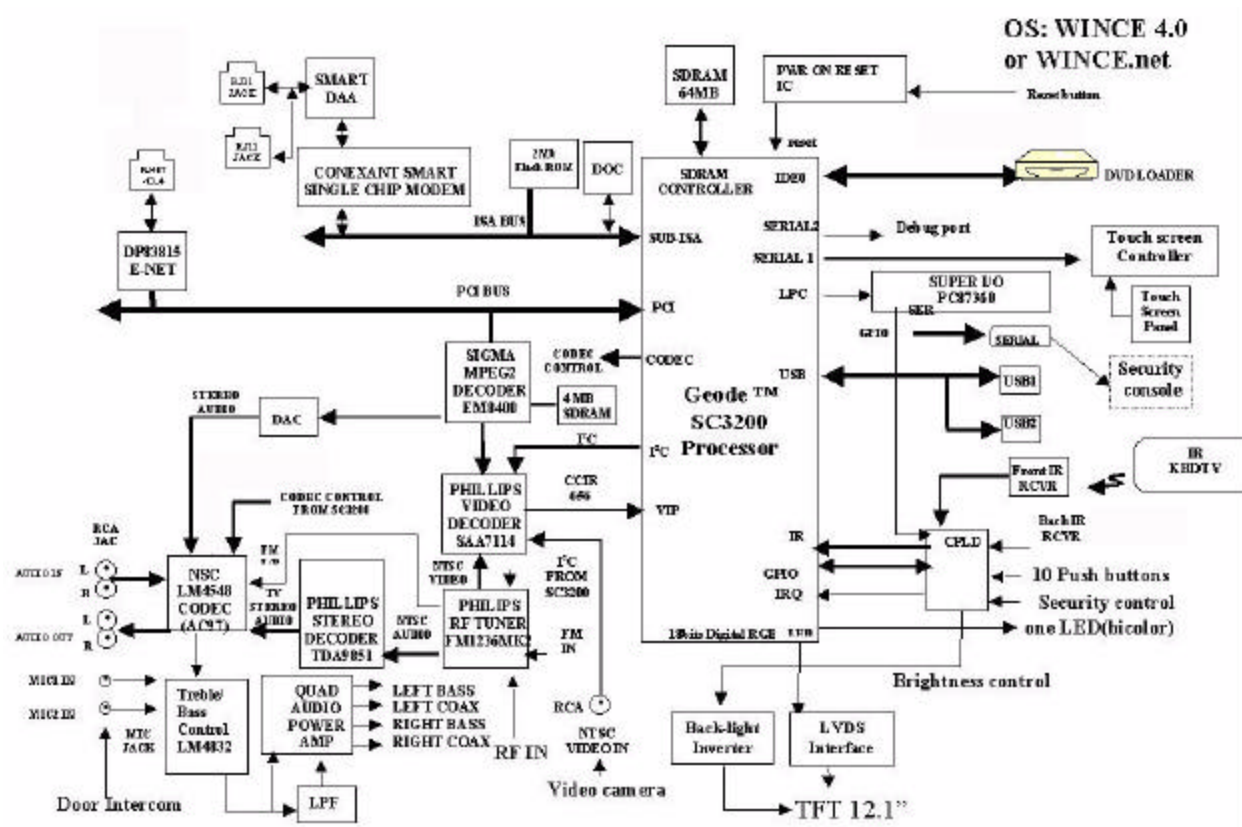
icebox flipscreen

4   Block Diagrams

iCEBOX II FlipScreen Interconnect Diagram
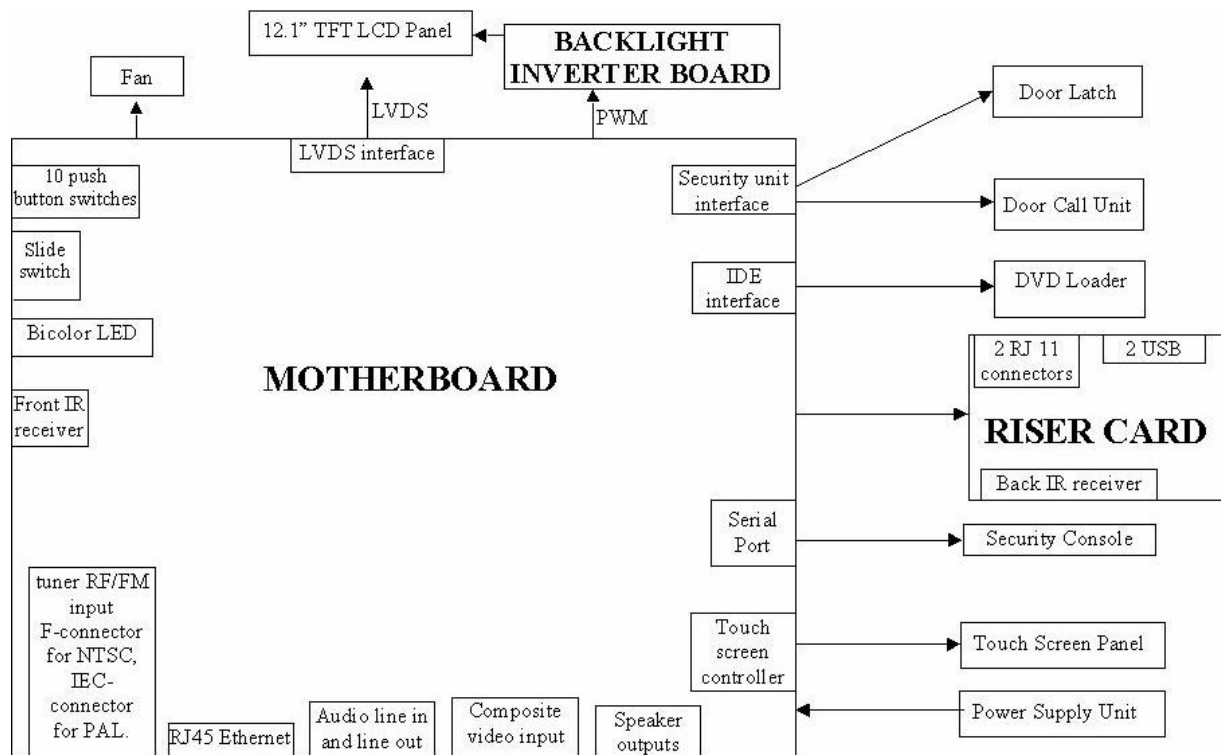
iCEBOX II FlipScreen Block Diagram

iCEBOX II FlipScreen Display Block Diagram