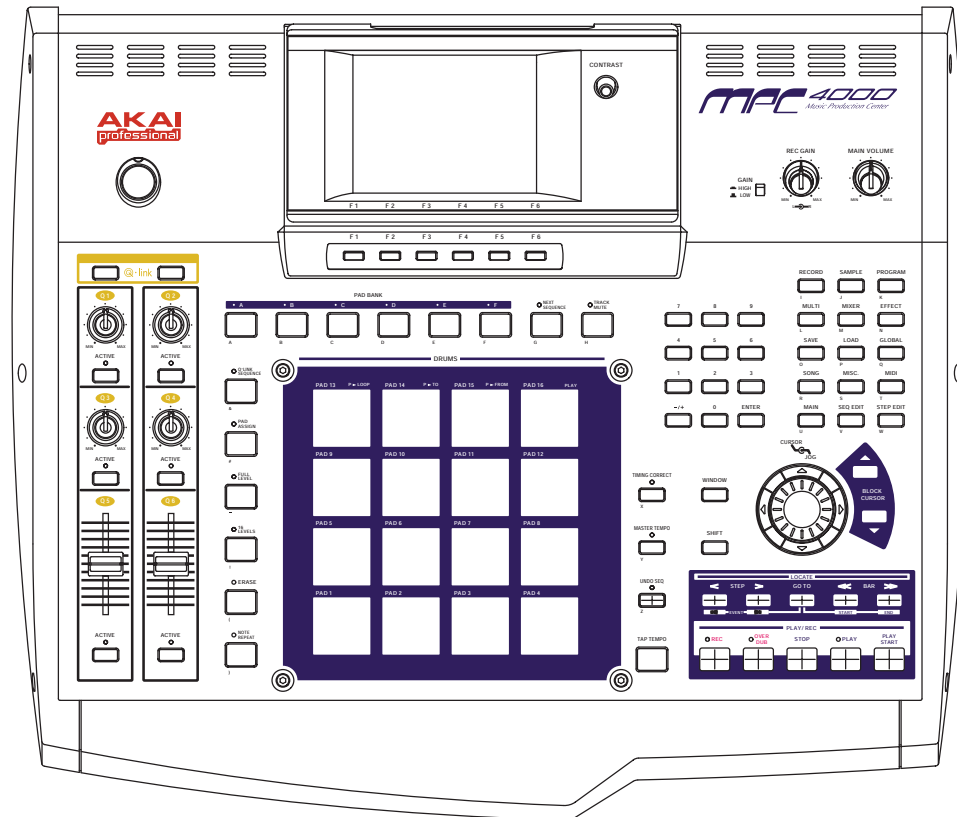


AKAI professional

SERVICE MANUAL

MPC 4000

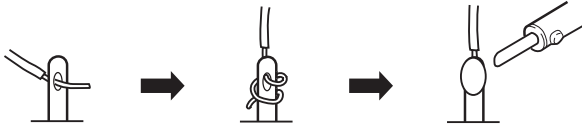
Music Production Center



Music production Center

★ SAFETY INSTRUCTIONS

1. Parts identified by the \triangle symbol are critical for safety. Replace them only with the parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation. These must also be replaced only with the specified replacements.
Examples : Noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially :
 - 1) Wires covered with PVC tubing
 - 2) Double insulated wires
 - 3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially :
 - 1) Insulation Tape
 - 2) PVC tubing
 - 3) Spacers (insulating barriers)
 - 4) Insulation sheets for transistors
 - 5) Plastic screws for fixing micro switches
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap the ends of the wires securely around the terminals before soldering.



6. Make sure that wires do not contact heat producing parts (heat sinks, oxide metal film resistors, fusible resistors, etc.).
7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Make sure that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

SAFETY CHECK AFTER SERVICING

After servicing, make measurements of leakage-current or resistance in order to determine that exposed parts are acceptably insulated from the supply circuit. The leakage-current measurement should be done between accessible metal parts (such as chassis, ground terminal, microphone jacks, signal input/output connectors, etc.) and the earth ground through a resistor of 1500 ohms paralleled with a 0.15 μ F capacitor, under the unit's normal working conditions.

The leakage-current should be less than 0.5 mA rms AC. The resistance measurement should be done between accessible exposed metal parts and power cord plug prongs with the power switch (if included) "ON". The resistance should be more than 2.2 M ohms.

★ INFORMATIONS

SYMBOLS FOR PRIMARY DESTINATION

Unit destinations are indicated with letters as shown below.

| Symbols | Principal Destinations |
|---------|------------------------|
| A | U.S.A |
| B | England |
| E | Europe |
| J | Japan |
| V | Germany |
| X1 | Japan |
| X4 | Universal Area |

MAKE YOUR CONTRIBUTION TO PROTECT THE ENVIRONMENT

Used batteries with the ISO symbol for recycling as well as small accumulators (rechargeable batteries), mini-batteries (cells) and starter batteries should not be thrown into the garbage can.



Please leave them at an appropriate depot.

PRECAUTIONS FOR LITHIUM BATTERY

The lithium battery may explode when incorrectly replaced. [OBSERVE THE FOLLOWING WHEN REPLACING]

- Replace with the same make and type or equivalent recommended by manufacturer.
- Place battery in correct polarity.
- Do not short the terminals.
- Do not charge battery.
- Do not dispose of battery in fire.

I. SPECIFICATIONS

| | | |
|---------------------|---|--|
| General | Power supply | 100-240V AC 50/60Hz 70W (27W without options) |
| | Dimensions | 526 (W) x 170 (H) x 453 (D) mm (with LCD tilted down) |
| | Weight | 10.5kg (without options) |
| | Display | 320 x 240 dots grey-scale graphical LCD w/back light |
| Sound Generator | Sampling rate | 44.1kHz, 48kHz, 96kHz |
| | Data format | 24/16 bit linear |
| | Sampling time (unexpanded memory) | 180/120 (16/24 bit) seconds mono FS=44.1kHz |
| | | 166/110 (16/24 bit) seconds mono FS=48kHz |
| | | 82/53 (16/24 bit) seconds mono FS=96kHz |
| | | 90/60 (16/24 bit) seconds stereo FS=44.1kHz |
| | | 83/55 (16/24 bit) seconds stereo FS=48kHz |
| | 40/26 (16/24 bit) seconds stereo FS=96kHz | |
| | Memory | 16MB standard, expandable to 512MB |
| | | 168-pin DIMM (PC133/PC100, CL2) slot x 2 |
| | Polyphony | 64 voices |
| Filter | 2-pole x 3 with resonance | |
| Envelope generators | 3 x Envelope generators (2 multi-stage) | |
| LFO | 2 x Multi-wave | |
| Sequencer | Maximum events | 300,000 notes (equivalent) |
| | Resolution | 960 parts per 1/4-note (ppq) |
| | Sequences | 128 |
| | Tracks per sequence | 128 |
| | MIDI output channels | 64 (16 channels x 4 output ports) |
| | Song mode | 128 songs, 250 steps per song |
| | Drum pads | 16 (velocity and pressure sensitive) |
| | Drum pads banks | 6 |
| | Sync modes | MTC, MIDI clock, SMPTE |
| Inputs/Outputs | Rec In LINE/MIC L/R | 1/4-inch stereo phone/XLR Combo jack, balanced, 1/4-inch phone, Imp. 18k Ω , 24dBu max./XLR, Imp. 6k Ω , 22dBu max. |
| | Rec In PHONO L/R | RCA phono x 2 with RIAA EQ, -24dBu max. (1kHz) |
| | Main Out L/R | 1/4-inch stereo phone/XLR Combo jack, balanced, 1/4-inch phone, Imp. 1.7k Ω , 24dBu max./XLR, Imp. 200 Ω , 18dBu max. |
| | Assignable Outs (IB-48P required) | 1/4-inch stereo phone x 8, balanced, Imp. 1.7k Ω , 18dBu max. |
| | Headphone | 1/4-inch stereo phone, 60mW (32 Ω) |
| | Digital Input (IB-4D required) | RCA phono x 1, SPDIF |
| | Digital Main Output (IB-4D required) | RCA phono x 1, SPDIF |
| | Word Clock Input (IB-4D required) | BNC x 1 (w/75 Ω terminator On/Off) |
| | SMPTE In | 1/4-inch stereo phone, balanced |
| | SMPTE Out | 1/4-inch stereo phone, balanced |
| | Footswitch | 1/4-inch phone x 2 |
| | MIDI Input | 5-pin DIN x 2 |
| | MIDI Output | 5-pin DIN x 4 |
| | SCSI | 50-pin high-pitch SCSI connector x 1 |
| | USB | Host x 1, Slave x 1 (V1.1) |
| Options | IB-4D | Digital Audio (SPDIF) I/O board |
| | IB-4ADT | Adat Interface board (2-in/8-out) |
| | IB-48P | Assignable 8-channel Output Board |
| Standard accessory | Power Cable | x 1 |
| | CD-ROM disc | x 1 |
| | Drive Mounting Kit | x 1 |
| | User Guide | x 1 |

* The specifications are subject to change without the prior notice.

II. DISASSEMBLY

In case of trouble, etc., necessitating dismantling, please dismantle in the order shown in the illustrations. Reassemble in the reverse order.

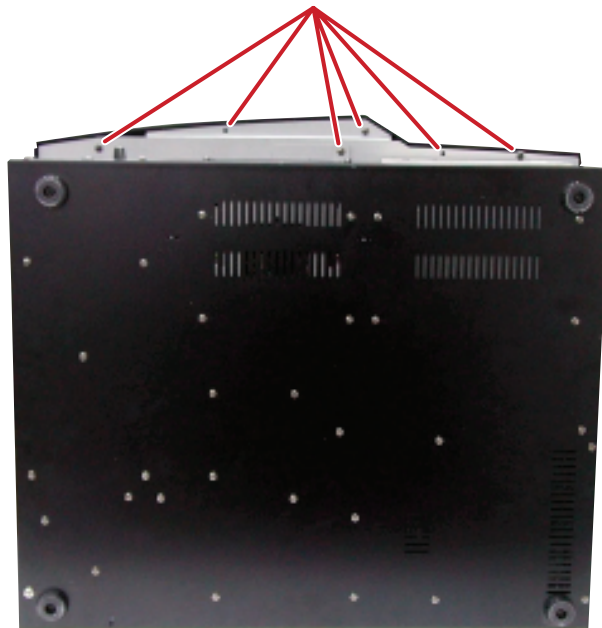
1. Removal of the OPERATION BLOCK



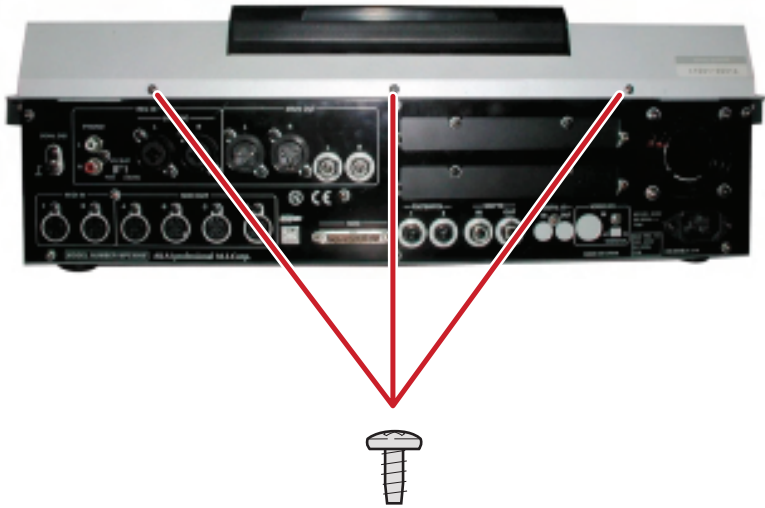
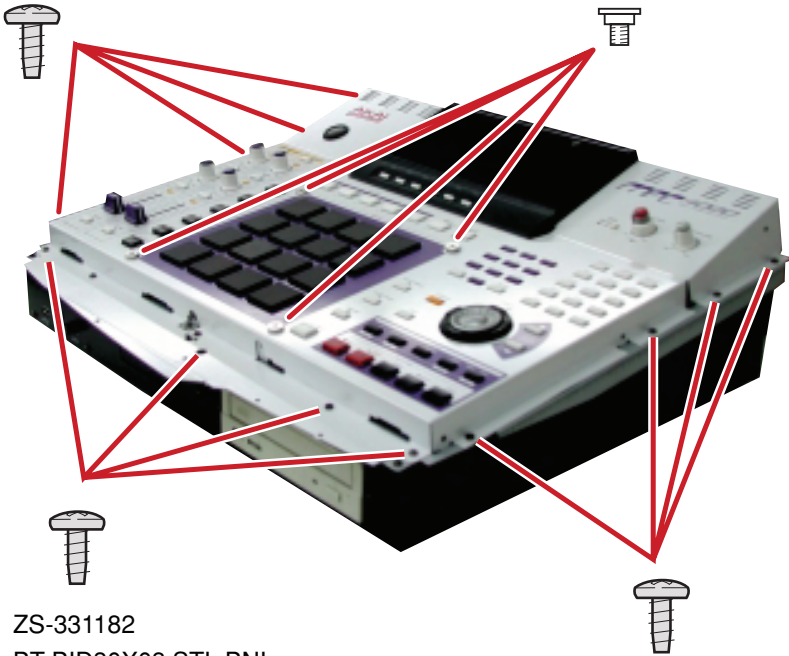
ZS-322570
ST BID40X08STL NI3

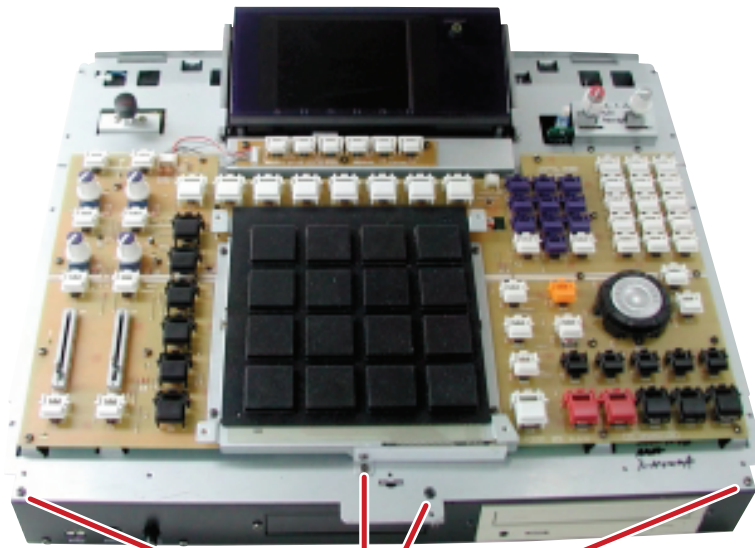


ZS-331182
BT BID30X08STL BNI



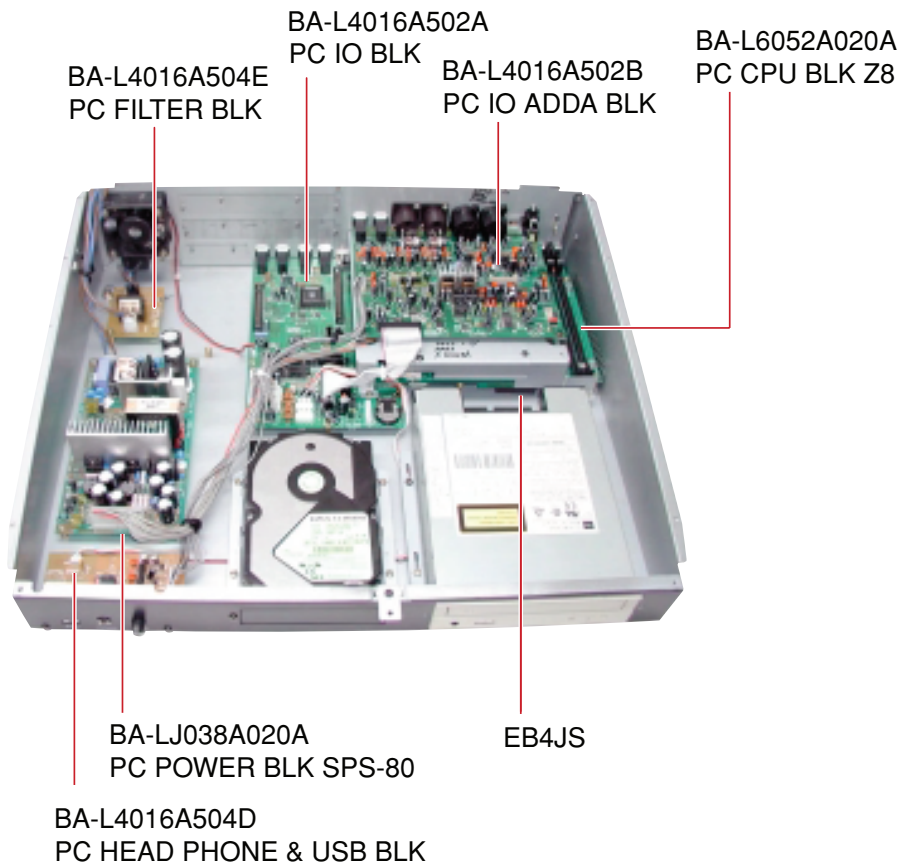
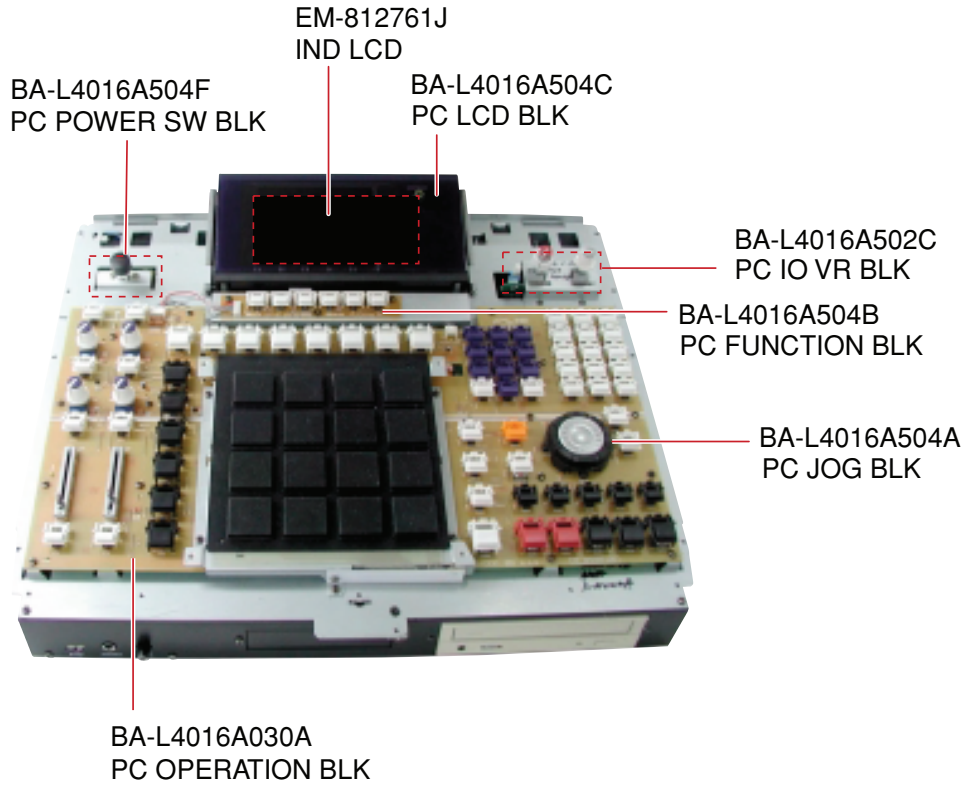
ZS-821548X SCREW TOP COVER NI





ZS-331182
BT BID30X08 STL BNI

III. PRINCIPAL PARTS LOCATION



IV. OS Update Procedure

OS Update Procedure

[OS Update procedure from USB]

The OS update can be made from the PC via the USB port.

You must have the "OS loader software for MPC4000" besides the OS .bin file.

The OS loader software includes the OS Loader.exe file, USB driver.inf file, and USB Driver.sys file.

1. Install USB Driver to your PC

After all files are un-Zipped, place the USB Driver.inf and USB Driver.sys files into the same folder, e.g. Driver.

Boot up the PC and MPC4000 complete and then connect the sampler to the PC using the USB cable.

This prompts that the PC found the new device and the new driver is required.

Refer it to the Driver folder you just created.

The Driver software will be placed correctly and the MPC4000 is recognized properly.

2. OS update

Double click on the OS Loader.exe icon and specify the OS .bin file. It will send the OS to the MPC4000.

[Caution]

After the update, be sure to initialize the MPC4000 by pressing the GLOBAL key, and then [F6] (INITIAL) and [F5] (DO IT) keys, before turning it off.

[OS update procedure from CD-R]

To update the OS from the CD-ROM, it requires the OS version later than V1.02 software installed on the MPC4000.

You can update the OS from the CD-ROM drive. Be sure to use the CD-ROM that contains the OS for the MPC 4000. You can create the OS disc by using your PC's CD-R/W function to write the "MPC4000.bin" file on to an ISO9660 CD-ROM disc.

1. Turn the MPC4000 on and insert the OS disc.

2. Press the LOAD key and select the MPC4000 OS file (.bin file).

3. Press the [F6] (DO IT) key and then the [F6] (INSTALL) key.

4. The OS Update progress appears, i.e. the messages "Please wait ??." and then "Upgrading of the Flash ROM was successful." appear accordingly.

5. Press the [F6] (Restart) key. Be sure to initialize the MPC4000 by pressing the GLOBAL key, and then the [F6] (INITIAL) and [F5] (DO IT) keys, before turning it off.

Writing Panel OS Program

Change the position of the Short Pin P15 on the IO PCB to PROG side.

The OS is automatically written to the Panel CPU RAM when the MPC4000 is switched on.

Switch the unit off when the "Process completed!" prompt message appeared and then replace the Short Pin to the original position.

V. TEST MODE

Panel Test Mode

To enter the Panel Test Mode, press the GLOBAL key while holding down the SHIFT key in the GLOBAL page [F1] of the GLOBAL Mode.

- Moving the Q-link knobs changes the graphics accordingly.
- Tapping the PAD shows the amount of pressure applied on the bar graph.
- Switching the FOOT Pedal on/off changes the graphics accordingly.
- Turning the JOG wheel increases/decreases the value in the Data field.
- Pressing the key shows its name at the bottom of the screen. For those keys with the LED, the LED is turned on/off.
- Pressing the [F1] key stops the key test.
- After stopping the key test, pressing the mode key will abort the test mode.
- While the key test is stopped, pressing the SHIFT key and [F6] key shows the A/D converted value of the Q-link/ PAD.

CPU Board Test Mode

The Test Mode of the MPC4000 CPU Board is performed while the CPU board is mounted on the Z4/Z8 Sampler. When the Z4/Z8 is switched on after the MPC4000 CPU Board is mounted on the Z4/Z8 Sampler, the sampler is turned on with the MPC4000 screen.

Install the Z4/Z8 OS using the "OS Loader" of "Boot Overwrite" type via the USB port.

Similarly, when the CPU Board is mounted back on the MPC4000 after the Z4/Z8 OS is installed for the test, it boots up with the Z4/Z8 screen. Reinstall the MPC4000 OS using the "OS Loader" of "Boot Overwrite" type. Refer to the Z4/Z8 Service Manual for the operation details of the Test Mode for the CPU Board.

VI. PARTS LIST

ATTENTION

1. When placing an order for parts, be sure to list the Part No., Model No. and the description of each part. Otherwise, the non-delivery of the part or the delivery of a wrong part may result.
2. Please make sure that Part No. is correct when ordering. If not, a part different from the one you ordered may be delivered.
3. Since the parts shown in Parts List or Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.

HOW TO USE THIS PARTS LIST

1. This Parts List lists those parts which are considered necessary for repairs.
2. Parts not shown in the Parts List will not in principle be supplied.
3. How to read the Parts List.

1. PC MAIN BOARD BLK

| Ref. No. | Part No. | Description |
|----------|------------|--------------------|
| D5 | ED-431276C | D SCHOT 1S30-J T05 |
| D110 | ED-431276C | D SCHOT 1S30-J T05 |
| ⋮ | | |
| ⋮ | | |
| IC5 | EI-811073J | ICTRC-6593 |
| IC10 | EI-811068J | IC HD74HC157FP |

↑ Service parts classification

↑ These reference symbols correspond with component symbols in the Schematic Diagrams.

2. FINAL ASSEMBLY BLK

| Ref. No. | Part No. | Description |
|----------|---------------|--|
| 1. | SA-349332 | FOOT |
| 2. | ZS-344754C | ST PAN30x06STL CMT |
| ⋮ | | |
| ⋮ | | |
| 44. | SP-417333J | COVER TOP |
| 45. | ZS-418385J | BT BID30X06STL BNI EATR LOCK |
| 46-A | △ EW-380905J | AC CORD 250S KP300 KS16A H B J [J] |
| 46-B | △ EW-368420J1 | AC CORD 200SKP30KS B AC [A] |
| 46-C | △ EW-410608J | AC CORD 250 KP4819D KS31A B E [E,V] |

↑ Symbols for primary destination
[A] U.S.A. [J] Japan
[B] England [V] Germany
[E] Europe [x1] Japan
[X4] Universal Area

↑ Safety critical component

↑ This number corresponds with the individual parts index number in the figure.

WARNING

△ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

AVERTISSEMENT

△ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

PC BOARD BLK

The PC Board Block may contain several PC Boards. They appear under its block name with their individual part number.

1. P.C. BOARD BLOCK

| Ref.No. | Part No. | Description |
|---------|---------------|--------------------------|
| 1 | BA-L6052A020A | PC CPU BLK Z8 |
| 2 | BA-L4016A020A | PC (#) IO BLK MPC4000 |
| 3 | BA-L4016A030A | PC OPERATION BLK MPC4000 |
| 4 | BA-L4016A040A | PC (#) OTHER BLK MPC4000 |

PC (#) IO BLK CONSISTS OF FOLLOWING P.C. BOARDS.

| Ref.No. | Part No. | Description |
|---------|---------------|----------------|
| * | BA-L4016A502A | PC IO BLK |
| * | BA-L4016A502B | PC IO ADDA BLK |
| * | BA-L4016A502C | PC IO VR BLK |

PC (#) OTHER BLK CONSISTS OF FOLLOWING P.C. BOARDS.

| Ref.No. | Part No. | Description |
|---------|---------------|-------------------------|
| * | BA-L4016A504A | PC JOG BLK |
| * | BA-L4016A504B | PC FUNCTION KEYS BLK |
| * | BA-L4016A504C | PC LCD BLK |
| * | BA-L4016A504D | PC HEAD PHONE & USB BLK |
| * | BA-L4016A504E | PC FILTER BLK |
| * | BA-L4016A504F | PC POWER SW BLK |

2. P.C. CPU BLOCK

| Ref.No. | Part No. | Description |
|---------|-------------|---|
| IC1 | EI-820788X | IC GDS1110BD-206MHZ MBGA [unavailable] |
| IC2 | EI-821551X | IC MB87L1852PFVS-G-BND JSL |
| IC3 | EI-821594X | IC HM5264165FTT-75 |
| IC4 | EI-821594X | IC HM5264165FTT-75 |
| IC5 | EI-821424X | IC HY57V281620AT-7 FPTY |
| IC6 | EI-821424X | IC HY57V281620AT-7 FPTY |
| IC7 | EI-821211X | IC MBM29DL322TE90TN |
| IC8 | EI-820962X | IC XC95144XL-7TQ100C |
| IC9 | EI-820961X | IC XC2S100-5TQ144C |
| IC10 | EI-820959X1 | IC SL811HST V1.5 |
| IC11 | EI-812785J | IC FAS236U PQFP |
| IC12 | EI-820949X | IC HD74ALVCH16245TEL |
| IC13 | EI-820948X | IC HD74ALVCH16244TE |
| IC14 | EI-820948X | IC HD74ALVCH16244TE |
| IC15 | EI-820948X | IC HD74ALVCH16244TE |
| IC16 | EI-820949X | IC HD74ALVCH16245TEL |
| IC17 | EI-820951X | IC HD74LVC244AT FPELT16E |
| IC18 | EI-820951X | IC HD74LVC244AT FPELT16E |
| IC19 | EI-812979J | IC HD74LVC245ATELL FPELT16E |
| IC20 | EI-810574J | IC M51957BFP FP73AT12 |
| IC21 | EI-820957X | IC NJM317DL1 FPTE1T16E |
| IC22 | EI-820957X | IC NJM317DL1 FPTE1T16E |
| IC23 | EI-820955X | IC NET2890 |
| J1 | EJ-820938X | SOCKET SMD XH4A-8035-A 80P |
| J2 | EJ-820938X | SOCKET SMD XH4A-8035-A 80P |
| J3 | EJ-820937X | SOCKET SMD XH4A-4035-A 40P |
| J4 | EJ-820937X | SOCKET SMD XH4A-4035-A 40P |
| J5 | EJ-820990X | SOCKET DMM-168F-111B1 168P |
| J6 | EJ-820990X | SOCKET DMM-168F-111B1 168P |
| J7 | EJ-419246J | SOCKET 128A-050S2A-S14A 50P |
| P2 | EJ-810581J | PLUG SCP40GS3 40P |
| P2 | EJ-810581J | PLUG SCP40GS3 40P |
| P4 | EJ-432670J | PLUG C.S6B-PH-SM3-TB 6P T24E |
| P5 | EJ-821159X | PLUG C.S5B-PH-SM3-TB 5P T24E |
| P6 | EJ-820998X | PLUG C.S4B-PH-SM3-TB 4P T24E |
| TR1 | ET-430868J | TR C.DTC114EKA T146T08E |
| TR2 | ET-430868J | TR C.DTC114EKA T146T08E |
| TR3 | ET-430868J | TR C.DTC114EKA T146T08E |
| UN1 | EI-820944X | DC-DC CONVERTER HGS15-3R3 |

| Ref.No. | Part No. | Description |
|---------|------------|---------------------------------|
| X1 | EI-820769X | OSC X'TAL C.SMD-49 3.6864MHZ |
| X2 | EI-820994X | OSC X'TAL C.DS0751SV 18.4320MHZ |
| X3 | EI-820993X | OSC X'TAL C.DS0751SV 16.9344MHZ |
| X4 | EI-820991X | OSC X'TAL C.SMD-49 12.0000MHZ |
| X5 | EI-820995X | OSC X'TAL C.DS0751SB 40.0000MHZ |
| X6 | EI-820989X | OSC X'TAL C.DS0751SV 48.0000MHZ |

3. P.C. IO BLOCK

| Ref.No. | Part No. | Description |
|---------|--------------|-----------------------------------|
| 100 | EZ-811066J | BATTERY LITHIUM CR2025 |
| 400 | ES-429984J | SOCKET IC113-0444-004 44P |
| D1 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D2 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D3 | ED-428162J | D SCHOTTKY 1S30-E T26 |
| D4 | ED-428162J | D SCHOTTKY 1S30-E T26 |
| D5 | ED-820774X | D SCHOT.H EK16 V0 T26 60/1.5A |
| D6 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D7 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D8 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D9 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D30 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D31 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D32 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D33 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| FS1 | △ EF-811786J | FUSE RUE110 30V 1.10A |
| IC1 | EI-821048X | IC UPC29M33AT-E2 FPE2T16E |
| IC2 | EI-811073J | IC RTC-6593 |
| IC3 | EI-396659J | IC NJM2360D |
| IC4 | EI-820062J | IC HD74HCT541FP FPELT24 |
| IC5 | EI-821116X | IC HD74HCT04AFP FPELT16E |
| IC6 | EI-810828J | IC MCCS142236DWR2 18B FPR2T24E |
| IC7 | EI-812979J | IC HD74LVC245ATELL FPELT16E |
| IC8 | EI-812979J | IC HD74LVC245ATELL FPELT16E |
| IC9 | EI-812977J | IC HD74LVC08TELL FPELT16E |
| IC10 | EI-431113J | IC M51953BFP-73A FP73AT12E |
| IC11 | EI-821593X | IC ICS2008BV |
| IC12 | EI-380145J | IC LF353 |
| IC13 | EI-821344X | IC TC74HCT32AF-EL FPELT16 |
| IC14 | EI-812980J | IC HD74LVC32TELL FPELT16E |
| IC15 | EI-812979J | IC HD74LVC245ATELL FPELT16E |
| IC16 | EI-812980J | IC HD74LVC32TELL FPELT16E |
| IP1 | △ EF-373285 | FUSE ICP-N25 T05 50V 1.0A |
| J1 | EJ-430956J | DIN J YKF51-5058 2X5P |
| J2 | EJ-430956J | DIN J YKF51-5058 2X5P |
| J3 | EJ-430956J | DIN J YKF51-5058 2X5P |
| J5 | EJ-820493X | SOCKET BATTERY BH25TN |
| J6 | EJ-820316X | SOCKET CONNECTER YKF45-0001 4P |
| J8 | EJ-820939X | SOCKET XH4A-8031-A 80P |
| J9 | EJ-820939X | SOCKET XH4A-8031-A 80P |
| J10 | EJ-821219X | PHONE J YKB22-5244 NUT 6.3 |
| J11 | EJ-821219X | PHONE J YKB22-5244 NUT 6.3 |
| J12 | EJ-812347J | SOCKET FCN-235D050-G/J 50P |
| J13 | EJ-821386X | PHONE J YKB22-5264 NUT 6.3 |
| J14 | EJ-821386X | PHONE J YKB22-5264 NUT 6.3 |
| L1 | EO-812743J | COIL FIX 1 LHL10NB 821K |
| P14 | EJ-810270J | PLUG SCP50GS3 50P |
| P2 | EJ-810271J | PLUG SCP26GS3 26P |
| P3 | EJ-810581J | PLUG SCP40GS3 40P |
| P3 | EJ-810581J | PLUG SCP40GS3 40P |
| P4 | EJ-810270J | PLUG SCP50GS3 50P |
| P9 | EJ-810271J | PLUG SCP26GS3 26P |
| PH1 | EJ-431258J | DETECTOR C.PC400T T12E |
| PH2 | EJ-431258J | DETECTOR C.PC400T T12E |

| Ref.No. | Part No. | Description | Ref.No. | Part No. | Description |
|--------------------------|--------------|--------------------------------|--------------------------------|-----------------|--------------------------------|
| R23 | △ ER-812771J | R OMF V T05FS ERX12SE1/2W 1R0J | J27 | EJ-821386X | PHONE J YKB22-5264 NUT 6.3 |
| R77 | △ ER-821483X | R OMF H S15 FS ERG2SH 2W 820J | R361 | △ ER-422512J | R OMF H S15 FS ERG2SH 2W 151J |
| TR1 | ET-429896J | TR C.DTA144EKA T146T08E | RL1 | EQ-348929 | RELAY SIG G5A-237P 2TR 12V |
| TR2 | ET-429897J | TR C.DTC144EKA T146T08E | RL2 | EQ-348929 | RELAY SIG G5A-237P 2TR 12V |
| TR3 | ET-434246J | TR 2SB1326 Q,R T05 | SW1 | ES-821121X | SW SLIDE SSSF142-S09N0 4-02N |
| TR4 | ET-362209 | TR 2SC3330 S,T,U T05 | TR10 | ET-821232X | TR 2SC3329 GR,BL T05 |
| TR5 | ET-430868J | TR C.DTC114EKA T146T08E | TR11 | ET-821232X | TR 2SC3329 GR,BL T05 |
| TR6 | ET-429898J | TR C.DTA114EKA T146T08E | TR12 | ET-821232X | TR 2SC3329 GR,BL T05 |
| | | | TR13 | ET-821232X | TR 2SC3329 GR,BL T05 |
| | | | TR14 | ET-821232X | TR 2SC3329 GR,BL T05 |
| | | | TR15 | ET-821232X | TR 2SC3329 GR,BL T05 |
| | | | TR16 | ET-821232X | TR 2SC3329 GR,BL T05 |
| | | | TR17 | ET-821232X | TR 2SC3329 GR,BL T05 |
| | | | TR19 | ET-362847 | TR 2SA1317 S,T,U T05 |
| | | | TR20 | ET-430868J | TR C.DTC114EKA T146T08E |
| | | | TR21 | ET-410280J | TR 2SC3327 A T05 |
| | | | TR22 | ET-410280J | TR 2SC3327 A T05 |
| | | | TR23 | ET-410280J | TR 2SC3327 A T05 |
| | | | TR24 | ET-410280J | TR 2SC3327 A T05 |
| P.C. IO ADD BLOCK | | | P.C. IO VR BLOCK | | |
| X1 | EI-410263J | OSC X'TAL HC-49/U 14.318180MHZ | IC60 | EI-810591J | IC NJM5532L |
| D10 | ED-811455J | D SILICON H 1SS133T-77 T26 | IC61 | EI-812479J | IC NJM5532M FPT1T32P |
| D11 | ED-811455J | D SILICON H 1SS133T-77 T26 | IC62 | EI-812479J | IC NJM5532M FPT1T32P |
| D12 | ED-811455J | D SILICON H 1SS133T-77 T26 | SW3 | ES-821122X | SW PUSH SPUJ19B-2N-#W |
| D13 | ED-811455J | D SILICON H 1SS133T-77 T26 | | | 2-02-02N |
| D14 | ED-811455J | D SILICON H 1SS133T-77 T26 | VR1 | EV-821124X | VR ROTARY RK1612220 L25RD203X2 |
| D15 | ED-811455J | D SILICON H 1SS133T-77 T26 | VR2 | EV-821123X | VR ROTARY RK16312A0 L25 B103X2 |
| D16 | ED-811455J | D SILICON H 1SS133T-77 T26 | | | |
| D17 | ED-811455J | D SILICON H 1SS133T-77 T26 | | | |
| D18 | ED-811455J | D SILICON H 1SS133T-77 T26 | | | |
| D19 | ED-811455J | D SILICON H 1SS133T-77 T26 | | | |
| D20 | ED-811455J | D SILICON H 1SS133T-77 T26 | | | |
| D21 | ED-811455J | D SILICON H 1SS133T-77 T26 | | | |
| D22 | ED-811455J | D SILICON H 1SS133T-77 T26 | | | |
| D23 | ED-811455J | D SILICON H 1SS133T-77 T26 | | | |
| D24 | ED-811455J | D SILICON H 1SS133T-77 T26 | | | |
| IC21 | EI-348785 | IC M5220L | | | |
| IC22 | EI-348785 | IC M5220L | | | |
| IC23 | EI-348785 | IC M5220L | | | |
| IC24 | EI-397407J | IC NJM7812FA | | | |
| IC25 | EI-348785 | IC M5220L | | | |
| IC26 | EI-348785 | IC M5220L | | | |
| IC27 | EI-810591J | IC NJM5532L | | | |
| IC28 | EI-348785 | IC M5220L | | | |
| IC29 | EI-810591J | IC NJM5532L | | | |
| IC30 | EI-812781J | IC AK5383VS FPE2T24E | | | |
| IC31 | EI-820696X | IC ICS570A-01CS08 FP T12E | | | |
| IC32 | EI-821120X | IC HD74LVC02TELL FPELT12E | | | |
| IC33 | EI-810574J | IC M51957BFP FP73AT12 | | | |
| IC34 | EI-336995 | IC NJM78L05A | | | |
| IC35 | EI-810574J | IC M51957BFP FP73AT12 | | | |
| IC36 | EI-821442X | IC PCM1730E FPT16E | | | |
| IC37 | EI-821226X | IC OPA2134UA FPT12E | | | |
| IC38 | EI-821226X | IC OPA2134UA FPT12E | | | |
| IC39 | EI-810591J | IC NJM5532L | | | |
| IC40 | EI-377191 | IC NJM5532D-D | | | |
| IC41 | EI-377191 | IC NJM5532D-D | | | |
| IC42 | EI-377191 | IC NJM5532D-D | | | |
| IC43 | EI-377191 | IC NJM5532D-D | | | |
| IC44 | EI-348785 | IC M5220L | | | |
| IC45 | EI-410281J | IC NJM7912FA | | | |
| IC46 | EI-821118X | IC NJM78M08FA | | | |
| IC47 | EI-400856J | IC NJM78M05FA | | | |
| IC48 | EI-400856J | IC NJM78M05FA | | | |
| IC49 | EI-821118X | IC NJM78M08FA | | | |
| IC50 | EI-821048X | IC UPC29M33AT-E2 FPE2T16E | | | |
| IC51 | EI-812977J | IC HD74LVC08TELL FPELT16E | | | |
| IC52 | EI-820951X | IC HD74LVC244AT FPELT16E | | | |
| IC53 | EI-810588J | IC SSM-2404P | | | |
| J21 | EJ-820762X | SOCKET RECEPTACLE NCJ9FI-H-0 | | | |
| J22 | EJ-820762X | SOCKET RECEPTACLE NCJ9FI-H-0 | | | |
| J23 | EJ-821443X | PIN J YKC21-3079 P2P | | | |
| J24 | EJ-386340J | SOCKET RECEPTACLE XLB3-32PCVM1 | | | |
| J25 | EJ-386340J | SOCKET RECEPTACLE XLB3-32PCVM1 | | | |
| J26 | EJ-821386X | PHONE J YKB22-5264 NUT 6.3 | | | |
| | | | 4. P.C. OPERATION BLOCK | | |
| | | | Ref.No. | Part No. | Description |
| | | | D100 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D101 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D102 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D103 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D104 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D105 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D106 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D107 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D108 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D109 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D110 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D111 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D112 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D113 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D114 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D115 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D116 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D117 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D118 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D119 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D120 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D121 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D122 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D123 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D124 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D125 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D126 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D127 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D128 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D129 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D130 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D131 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D132 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D133 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| | | | D134 | ED-811455J | D SILICON H 1SS133T-77 T26 |

| Ref.No. | Part No. | Description | Ref.No. | Part No. | Description |
|---------|------------|----------------------------|---------|-------------|----------------------------|
| D135 | ED-811455J | D SILICON H 1SS133T-77 T26 | D305 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D136 | ED-811455J | D SILICON H 1SS133T-77 T26 | D310 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D137 | ED-811455J | D SILICON H 1SS133T-77 T26 | D311 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D138 | ED-811455J | D SILICON H 1SS133T-77 T26 | D312 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D139 | ED-811455J | D SILICON H 1SS133T-77 T26 | D313 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D140 | ED-811455J | D SILICON H 1SS133T-77 T26 | D314 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D141 | ED-811455J | D SILICON H 1SS133T-77 T26 | D315 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D142 | ED-811455J | D SILICON H 1SS133T-77 T26 | D320 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D143 | ED-811455J | D SILICON H 1SS133T-77 T26 | D321 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D144 | ED-811455J | D SILICON H 1SS133T-77 T26 | D322 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D145 | ED-811455J | D SILICON H 1SS133T-77 T26 | D323 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D146 | ED-811455J | D SILICON H 1SS133T-77 T26 | D324 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D147 | ED-811455J | D SILICON H 1SS133T-77 T26 | D325 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D148 | ED-811455J | D SILICON H 1SS133T-77 T26 | D330 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D149 | ED-811455J | D SILICON H 1SS133T-77 T26 | D331 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D150 | ED-811455J | D SILICON H 1SS133T-77 T26 | D332 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D151 | ED-811455J | D SILICON H 1SS133T-77 T26 | D333 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D152 | ED-811455J | D SILICON H 1SS133T-77 T26 | D334 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D153 | ED-811455J | D SILICON H 1SS133T-77 T26 | D335 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D154 | ED-811455J | D SILICON H 1SS133T-77 T26 | D350 | ED-393487J | D ZENER H HZS7A1L T26 |
| D155 | ED-811455J | D SILICON H 1SS133T-77 T26 | D351 | ED-393487J | D ZENER H HZS7A1L T26 |
| D156 | ED-811455J | D SILICON H 1SS133T-77 T26 | D352 | ED-393487J | D ZENER H HZS7A1L T26 |
| D157 | ED-811455J | D SILICON H 1SS133T-77 T26 | D353 | ED-393487J | D ZENER H HZS7A1L T26 |
| D158 | ED-811455J | D SILICON H 1SS133T-77 T26 | D354 | ED-393487J | D ZENER H HZS7A1L T26 |
| D159 | ED-811455J | D SILICON H 1SS133T-77 T26 | IC22 | EI-820947X | IC HD64F2132RFA20 |
| D160 | ED-811455J | D SILICON H 1SS133T-77 T26 | IC24 | EI-375185 | IC M51953BL |
| D161 | ED-811455J | D SILICON H 1SS133T-77 T26 | IC300 | EI-362588J1 | IC M5238AP |
| D162 | ED-811455J | D SILICON H 1SS133T-77 T26 | IC320 | EI-362588J1 | IC M5238AP |
| D163 | ED-811455J | D SILICON H 1SS133T-77 T26 | IC350 | EI-387934J | IC HD74HC04P |
| D164 | ED-811455J | D SILICON H 1SS133T-77 T26 | P20 | EJ-361777 | PLUG S6B-PH-K WHT 6P |
| D165 | ED-811455J | D SILICON H 1SS133T-77 T26 | P30 | EJ-367245 | PLUG S4B-PH-K WHT 4P |
| D166 | ED-811455J | D SILICON H 1SS133T-77 T26 | P300 | EJ-821080X | SOCKET 5229-20APB 20P |
| D167 | ED-811455J | D SILICON H 1SS133T-77 T26 | SW100 | ES-415015J | SW TACT SKQEAD |
| D168 | ED-811455J | D SILICON H 1SS133T-77 T26 | SW101 | ES-415015J | SW TACT SKQEAD |
| D169 | ED-811455J | D SILICON H 1SS133T-77 T26 | SW102 | ES-415015J | SW TACT SKQEAD |
| D170 | ED-811455J | D SILICON H 1SS133T-77 T26 | SW103 | ES-415015J | SW TACT SKQEAD |
| D200 | ED-388539J | D LED GL-3HD43 | SW104 | ES-415015J | SW TACT SKQEAD |
| D201 | ED-388539J | D LED GL-3HD43 | SW105 | ES-415015J | SW TACT SKQEAD |
| D202 | ED-388539J | D LED GL-3HD43 | SW106 | ES-349474 | SW TACT SKHHAM004A |
| D203 | ED-812086J | D LED L-934SGD GREEN | SW107 | ES-349474 | SW TACT SKHHAM004A |
| D204 | ED-812086J | D LED L-934SGD GREEN | SW108 | ES-349474 | SW TACT SKHHAM004A |
| D205 | ED-810393J | D LED GL-3KG8 | SW109 | ES-349474 | SW TACT SKHHAM004A |
| D206 | ED-810393J | D LED GL-3KG8 | SW110 | ES-349474 | SW TACT SKHHAM004A |
| D208 | ED-812086J | D LED L-934SGD GREEN | SW111 | ES-349474 | SW TACT SKHHAM004A |
| D209 | ED-812086J | D LED L-934SGD GREEN | SW112 | ES-349474 | SW TACT SKHHAM004A |
| D210 | ED-810393J | D LED GL-3KG8 | SW113 | ES-415015J | SW TACT SKQEAD |
| D211 | ED-810393J | D LED GL-3KG8 | SW114 | ES-349474 | SW TACT SKHHAM004A |
| D212 | ED-810393J | D LED GL-3KG8 | SW115 | ES-349474 | SW TACT SKHHAM004A |
| D213 | ED-810393J | D LED GL-3KG8 | SW116 | ES-349474 | SW TACT SKHHAM004A |
| D214 | ED-812086J | D LED L-934SGD GREEN | SW117 | ES-349474 | SW TACT SKHHAM004A |
| D215 | ED-810393J | D LED GL-3KG8 | SW118 | ES-349474 | SW TACT SKHHAM004A |
| D216 | ED-810393J | D LED GL-3KG8 | SW119 | ES-349474 | SW TACT SKHHAM004A |
| D217 | ED-810393J | D LED GL-3KG8 | SW120 | ES-349474 | SW TACT SKHHAM004A |
| D218 | ED-810393J | D LED GL-3KG8 | SW121 | ES-349474 | SW TACT SKHHAM004A |
| D219 | ED-810393J | D LED GL-3KG8 | SW122 | ES-349474 | SW TACT SKHHAM004A |
| D220 | ED-812086J | D LED L-934SGD GREEN | SW123 | ES-349474 | SW TACT SKHHAM004A |
| D221 | ED-810393J | D LED GL-3KG8 | SW124 | ES-349474 | SW TACT SKHHAM004A |
| D222 | ED-810393J | D LED GL-3KG8 | SW125 | ES-349474 | SW TACT SKHHAM004A |
| D224 | ED-810393J | D LED GL-3KG8 | SW126 | ES-349474 | SW TACT SKHHAM004A |
| D225 | ED-810393J | D LED GL-3KG8 | SW127 | ES-349474 | SW TACT SKHHAM004A |
| D226 | ED-810393J | D LED GL-3KG8 | SW128 | ES-349474 | SW TACT SKHHAM004A |
| D227 | ED-810393J | D LED GL-3KG8 | SW129 | ES-349474 | SW TACT SKHHAM004A |
| D300 | ED-811455J | D SILICON H 1SS133T-77 T26 | SW130 | ES-349474 | SW TACT SKHHAM004A |
| D301 | ED-811455J | D SILICON H 1SS133T-77 T26 | SW131 | ES-349474 | SW TACT SKHHAM004A |
| D302 | ED-811455J | D SILICON H 1SS133T-77 T26 | SW132 | ES-349474 | SW TACT SKHHAM004A |
| D303 | ED-811455J | D SILICON H 1SS133T-77 T26 | SW133 | ES-349474 | SW TACT SKHHAM004A |
| D304 | ED-811455J | D SILICON H 1SS133T-77 T26 | SW134 | ES-349474 | SW TACT SKHHAM004A |

| Ref.No. | Part No. | Description |
|---------|------------|--------------------------------|
| SW135 | ES-349474 | SW TACT SKHHAM004A |
| SW136 | ES-349474 | SW TACT SKHHAM004A |
| SW137 | ES-349474 | SW TACT SKHHAM004A |
| SW138 | ES-349474 | SW TACT SKHHAM004A |
| SW139 | ES-349474 | SW TACT SKHHAM004A |
| SW140 | ES-349474 | SW TACT SKHHAM004A |
| SW141 | ES-349474 | SW TACT SKHHAM004A |
| SW142 | ES-349474 | SW TACT SKHHAM004A |
| SW143 | ES-349474 | SW TACT SKHHAM004A |
| SW144 | ES-349474 | SW TACT SKHHAM004A |
| SW145 | ES-349474 | SW TACT SKHHAM004A |
| SW146 | ES-349474 | SW TACT SKHHAM004A |
| SW147 | ES-349474 | SW TACT SKHHAM004A |
| SW148 | ES-349474 | SW TACT SKHHAM004A |
| SW149 | ES-337521 | SW TACT SKHHAL |
| SW150 | ES-337521 | SW TACT SKHHAL |
| SW151 | ES-337521 | SW TACT SKHHAL |
| SW152 | ES-337521 | SW TACT SKHHAL |
| SW153 | ES-337521 | SW TACT SKHHAL |
| SW154 | ES-337521 | SW TACT SKHHAL |
| SW155 | ES-337521 | SW TACT SKHHAL |
| SW156 | ES-337521 | SW TACT SKHHAL |
| SW157 | ES-337521 | SW TACT SKHHAL |
| SW158 | ES-337521 | SW TACT SKHHAL |
| SW159 | ES-337521 | SW TACT SKHHAL |
| SW160 | ES-337521 | SW TACT SKHHAL |
| SW161 | ES-337521 | SW TACT SKHHAL |
| SW162 | ES-337521 | SW TACT SKHHAL |
| SW163 | ES-349474 | SW TACT SKHHAM004A |
| SW164 | ES-349474 | SW TACT SKHHAM004A |
| SW165 | ES-349474 | SW TACT SKHHAM004A |
| SW166 | ES-349474 | SW TACT SKHHAM004A |
| SW167 | ES-349474 | SW TACT SKHHAM004A |
| SW168 | ES-349474 | SW TACT SKHHAM004A |
| SW169 | ES-349474 | SW TACT SKHHAM004A |
| SW170 | ES-349474 | SW TACT SKHHAM004A |
| TR200 | ET-364023 | TR DTC114ES T05 |
| TR201 | ET-364023 | TR DTC114ES T05 |
| TR202 | ET-364023 | TR DTC114ES T05 |
| TR203 | ET-364023 | TR DTC114ES T05 |
| TR204 | ET-364023 | TR DTC114ES T05 |
| TR205 | ET-366753 | TR DTA114ES T05 |
| TR206 | ET-366753 | TR DTA114ES T05 |
| TR207 | ET-366753 | TR DTA114ES T05 |
| TR208 | ET-366753 | TR DTA114ES T05 |
| TR209 | ET-366753 | TR DTA114ES T05 |
| TR210 | ET-366753 | TR DTA114ES T05 |
| VR200 | EV-812350J | VR SLIDE RS45112 L15 B103X2 SP |
| VR202 | EV-812350J | VR SLIDE RS45112 L15 B103X2 SP |
| VR204 | EV-812348J | VR ROTARY RK14K124 L20 B103X2 |
| VR206 | EV-812348J | VR ROTARY RK14K124 L20 B103X2 |
| VR208 | EV-812348J | VR ROTARY RK14K124 L20 B103X2 |
| VR210 | EV-812348J | VR ROTARY RK14K124 L20 B103X2 |
| X20 | EI-820996X | OSC X'TAL C.SMD-49 14.7456MHZ |

5. P.C. FILTER BLOCK

| Ref.No. | Part No. | Description |
|---------|------------|----------------------------|
| L1 | EO-427223J | COIL LF HR-24-562 |
| P1 | EJ-397230J | PLUG B2P3VH BLACK P7.92 2P |
| P2 | EJ-359621 | PLUG B2P-3-VH P7.92 2P |

P.C. FUNCTION KEYS BLOCK

| Ref.No. | Part No. | Description |
|---------|------------|----------------------------|
| D171 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D172 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D173 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D174 | ED-811455J | D SILICON H 1SS133T-77 T26 |

| Ref.No. | Part No. | Description |
|---------|------------|-----------------------------|
| D175 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| D176 | ED-811455J | D SILICON H 1SS133T-77 T26 |
| SW171 | ES-349474 | SW TACT SKHHAM004A |
| SW172 | ES-349474 | SW TACT SKHHAM004A |
| SW173 | ES-349474 | SW TACT SKHHAM004A |
| SW174 | ES-349474 | SW TACT SKHHAM004A |
| SW175 | ES-349474 | SW TACT SKHHAM004A |
| SW176 | ES-349474 | SW TACT SKHHAM004A |
| W170 | EW-821085X | WIRE ASSY L4016(3) JB-PH 6P |

P.C. HEADPHONE & USB BLOCK

| Ref.No. | Part No. | Description |
|---------|--------------|--------------------------------|
| IC200 | EI-353227 | IC M5216L |
| J200 | EJ-821000X | PHONE J YKB26-5264 S.NUT 6.3 |
| J250 | EJ-820970X | SOCKET CONNECTER YKF45-0001 4P |
| PS200 | △ EF-811786J | FUSE RUE110 30V 1.10A |
| R210 | △ ER-430691J | R OMF H S12 FS 1W 101J |
| R211 | △ ER-430691J | R OMF H S12 FS 1W 101J |
| TR200 | ET-410280J | TR 2SC3327 A T05 |
| TR201 | ET-410280J | TR 2SC3327 A T05 |
| TR202 | ET-410280J | TR 2SC3327 A T05 |
| TR203 | ET-410280J | TR 2SC3327 A T05 |
| VR200 | EV-821235X | VR ROTARY RK0971220 L15 B103X2 |
| W200 | EW-821086X | WIRE ASSY L4016(4) JC-PH 8P |
| W250 | EW-821088X | WIRE ASSY L4016(6) JB-PH 4P |

P.C. JOG BLOCK

| Ref.No. | Part No. | Description |
|---------|------------|-------------------------------|
| RE300 | ES-821084X | ROTARY ENCODER REC16B25-201-C |
| W300 | EW-821087X | WIRE ASSY L4016(5) JB-PH 4P |

P.C. LCD BLOCK

| Ref.No. | Part No. | Description |
|---------|------------|--------------------------------|
| J400 | EJ-812770J | SOCKET 14FE-ST-VK-N 14P |
| VR400 | EV-820602X | VR ROTARY RK09K113AF25B14 B103 |
| W400 | EW-812756J | WIRE ASSY L3055 W12 JB-51021 5 |
| W401 | EW-812757J | WIRE ASSY L3055 W16 JB-EH 14P |
| W402 | EW-813024J | WIRE AWG24 TCT BLK L=60 |

P.C. POWER SW BLOCK

| Ref.No. | Part No. | Description |
|---------|-------------|--------------------------|
| P3 | EJ-359621 | PLUG B2P-3-VH P7.92 2P |
| P4 | EJ-375206 | PLUG B2P3VH RED P7.92 2P |
| SW1 | ES-430685J1 | SW PUSH SDDF3A 02-1 |

6. P.C. EFFECT BLOCK (Z8)

| Ref.No. | Part No. | Description |
|---------|------------|----------------------------|
| IC1 | EI-812794J | IC XCB56362PV100 TQFP |
| IC2 | EI-820459X | IC GM71VS65163CLT-5 |
| IC3 | EI-820459X | IC GM71VS65163CLT-5 |
| IC4 | EI-812841J | IC HM62W16255HJP-15 |
| IC5 | EI-812841J | IC HM62W16255HJP-15 |
| IC6 | EI-812977J | IC HD74LVC08TELL FPELT16E |
| J1 | EJ-820937X | SOCKET SMD XH4A-4035-A 40P |
| J2 | EJ-820937X | SOCKET SMD XH4A-4035-A 40P |

7. IB-48P

| Ref.No. | Part No. | Description |
|---------|------------|-----------------------------|
| IC1 | EI-397407J | IC NJM7812FA |
| IC2 | EI-410281J | IC NJM7912FA |
| IC3 | EI-812978J | IC HD74LVC541ATELL FPELT16E |
| IC4 | EI-427221J | IC NJM7808FA |
| IC5 | EI-400856J | IC NJM78M05FA |
| IC6 | EI-821048X | IC UPC29M33AT-E2 FPE2T16E |
| IC7 | EI-336995 | IC NJM78L05A |
| IC8 | EI-810574J | IC M51957BFP FP73AT12 |
| IC9 | EI-821442X | IC PCM1730E FPT16E |
| IC10 | EI-821226X | IC OPA2134UA FPT12E |

| Ref.No. | Part No. | Description |
|---------|------------|------------------------------|
| IC11 | EI-810591J | IC NJM5532L |
| IC12 | EI-821226X | IC OPA2134UA FPT12E |
| IC13 | EI-810591J | IC NJM5532L |
| IC14 | EI-821442X | IC PCM1730E FPT16E |
| IC15 | EI-821226X | IC OPA2134UA FPT12E |
| IC16 | EI-810591J | IC NJM5532L |
| IC17 | EI-821226X | IC OPA2134UA FPT12E |
| IC18 | EI-810591J | IC NJM5532L |
| IC19 | EI-821442X | IC PCM1730E FPT16E |
| IC20 | EI-821226X | IC OPA2134UA FPT12E |
| IC21 | EI-810591J | IC NJM5532L |
| IC22 | EI-821226X | IC OPA2134UA FPT12E |
| IC23 | EI-810591J | IC NJM5532L |
| IC24 | EI-821442X | IC PCM1730E FPT16E |
| IC25 | EI-821226X | IC OPA2134UA FPT12E |
| IC26 | EI-810591J | IC NJM5532L |
| IC27 | EI-821226X | IC OPA2134UA FPT12E |
| IC28 | EI-810591J | IC NJM5532L |
| IC30 | EI-812977J | IC HD74LVC08TELL FPELT16E |
| J1 | EJ-413165J | PHONE J 3P YKB21-5009 NI 6.3 |
| J2 | EJ-821387X | PHONE J YKB21-5264 6.3 |
| J3 | EJ-821387X | PHONE J YKB21-5264 6.3 |
| J4 | EJ-413165J | PHONE J 3P YKB21-5009 NI 6.3 |
| J5 | EJ-821387X | PHONE J YKB21-5264 6.3 |
| J6 | EJ-821387X | PHONE J YKB21-5264 6.3 |
| J7 | EJ-413165J | PHONE J 3P YKB21-5009 NI 6.3 |
| J8 | EJ-821387X | PHONE J YKB21-5264 6.3 |
| TR1 | ET-410280J | TR 2SC3327 A T05 |
| TR2 | ET-410280J | TR 2SC3327 A T05 |
| TR3 | ET-410280J | TR 2SC3327 A T05 |
| TR4 | ET-410280J | TR 2SC3327 A T05 |
| TR5 | ET-410280J | TR 2SC3327 A T05 |
| TR6 | ET-410280J | TR 2SC3327 A T05 |
| TR7 | ET-410280J | TR 2SC3327 A T05 |
| TR8 | ET-410280J | TR 2SC3327 A T05 |
| TR9 | ET-410280J | TR 2SC3327 A T05 |
| TR10 | ET-410280J | TR 2SC3327 A T05 |
| TR11 | ET-410280J | TR 2SC3327 A T05 |
| TR12 | ET-410280J | TR 2SC3327 A T05 |
| TR13 | ET-410280J | TR 2SC3327 A T05 |
| TR14 | ET-410280J | TR 2SC3327 A T05 |
| TR15 | ET-410280J | TR 2SC3327 A T05 |
| TR16 | ET-410280J | TR 2SC3327 A T05 |
| TR17 | ET-364023 | TR DTC114ES T05 |
| TR18 | ET-362847 | TR 2SA1317 S,T,U T05 |
| W1 | EW-820969X | WIRE ASSY L5261(1) RA-RC 26P |

8. IB-4ADT

| Ref.No. | Part No. | Description |
|---------|------------|------------------------------|
| IC1 | EI-821412X | IC SM5849BF |
| IC2 | EI-821412X | IC SM5849BF |
| IC3 | EI-821412X | IC SM5849BF |
| IC4 | EI-821412X | IC SM5849BF |
| IC5 | EI-821412X | IC SM5849BF |
| IC6 | EI-820941X | IC XC2S50-5TQ144C |
| IC7 | EI-820957X | IC NJM317DL1 FPTE1T16E |
| IC8 | EI-810887J | IC AV9173-01CS08 FP T12E |
| IC9 | EI-810887J | IC AV9173-01CS08 FP T12E |
| IC10 | EI-812977J | IC HD74LVC08TELL FPELT16E |
| IC11 | EI-821160X | IC BA033FP E2 FPE2T16E |
| IC13 | EI-812978J | IC HD74LVC541ATELL FPELT16E |
| IC14 | EI-812978J | IC HD74LVC541ATELL FPELT16E |
| J1 | EJ-394459J | SOCKET OPTICAL GP1F32R |
| J2 | EJ-394490J | SOCKET OPTICAL GP1F32T |
| J3 | EJ-820965X | WIRE ASSY L5263(1) RA-RC 50P |
| P1 | EJ-364356 | PLUG B8B-PH-K WHT 8P |

| Ref.No. | Part No. | Description |
|---------|------------|---------------------------------|
| X1 | EI-820992X | OSC X'TAL C.DS0751SV 25.0000MHZ |

9. IB-4D

| Ref.No. | Part No. | Description |
|---------|--------------|-------------------------------|
| 100 | △ EZ-811066J | BATTERY LITHIUM CR2025 |
| 110 | EJ-378916J | SOCKET JM-2W-96 2P |
| IC1 | EI-813234J | IC CS8414-CS FPT1T24E |
| IC2 | EI-813233J | IC CS8404A-CS FPT1T24E |
| IC3 | EI-821412X | IC SM5849BF |
| IC4 | EI-821412X | IC SM5849BF |
| IC5 | EI-810887J | IC AV9173-01CS08 FP T12E |
| IC6 | EI-810887J | IC AV9173-01CS08 FP T12E |
| IC7 | EI-821022X | IC XC9572XL-7TQ100C |
| IC8 | EI-811576J | IC DS34C86TM FP T16E |
| IC9 | EI-811205J | IC MC74HCU04AF FPELT16E |
| IC10 | EI-811125J | IC UPC2933T |
| J1 | EJ-820754X | PIN J YKC21-3079 P2P |
| J2 | EJ-820150J | SOCKET COAX. BNC-LNRD-BPAA |
| SW1 | ES-428287J | SW SLIDE SSSF112-S06N1 1-02N |
| T1 | BT-810651J | TRANS PULSE CIT0705S-35101TFF |
| TR1 | ET-391712J | TR 2SA1317 S,T T05 |
| W1 | EW-821006X | WIRE ASSY L5262(1) RA-RC 40P |
| X1 | EI-821023X | OSC X'TAL C.DS0751SV 6.144MHZ |

10. LCD BLOCK

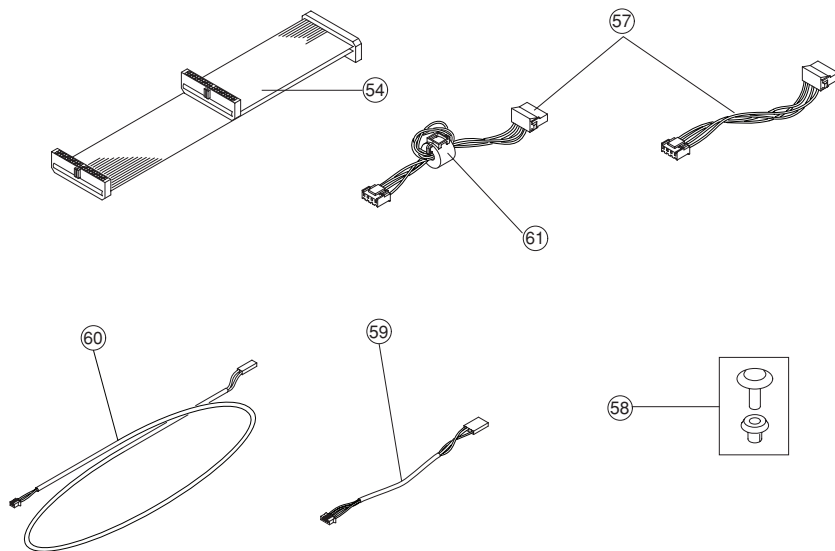
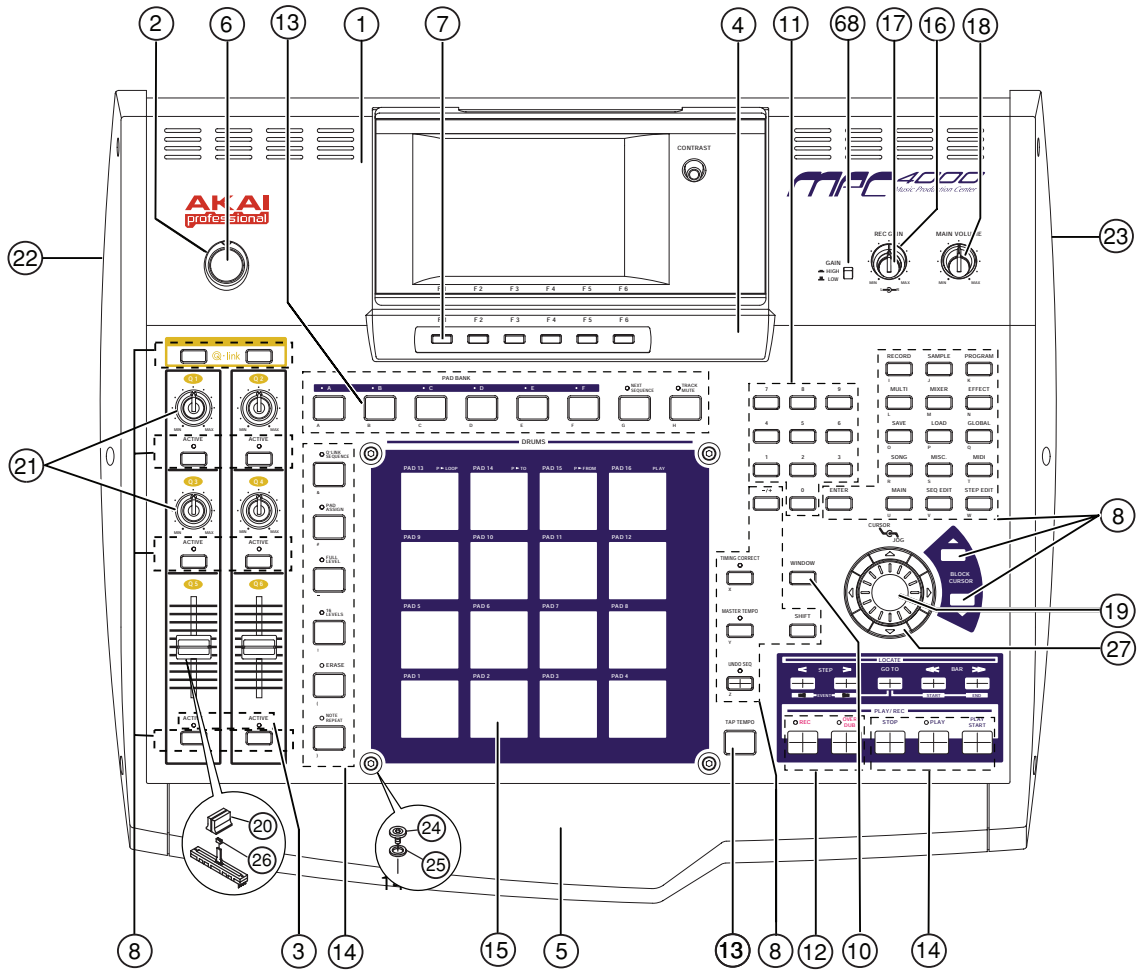
| Ref.No. | Part No. | Description |
|---------|---------------|--------------------------------|
| 1 | SP-812808X2 | PANEL LCD |
| 2 | SP-821150X | WINDOW LCD |
| 3 | EM-812761J | IND LCD G321EV5R001 |
| 4 | MB-820395X | SHIELD LCD 110 |
| 5 | MB-820396X | SHIELD LCD 90 |
| 6 | EM-812795J | INVERTER CXA-K0505-VJL |
| 7 | ZS-811805J | BT BID30X10STL BNI |
| 8 | EW-821444X | CORD FFC P1.25 L480 14P |
| 9 | ZS-331182 | BT BID30X08STL BNI |
| 10 | MS-812805J | SHAFT (1) |
| 11 | ZW-270101 | RING E 300SUP CMT |
| 12 | MS-812806J | SHAFT (2) |
| 13 | SP-812809J | BOTTOM LCD |
| 14 | SK-821433X | KNOB LCD (2) |
| 14 | EV-820602X | VR ROTARY RK09K113AF25B14 B103 |
| 15 | BA-L4016A504C | PC LCD BLK |
| 16 | EL-820373X | FL UNIT 001 |

11. FINAL ASSEMBLY BLOCK

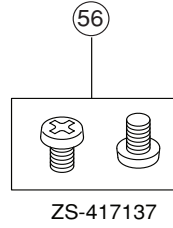
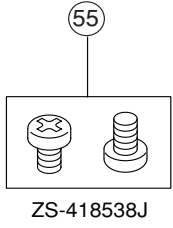
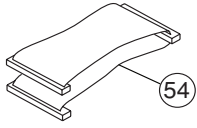
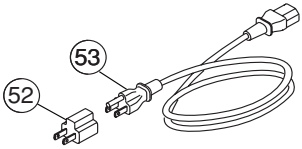
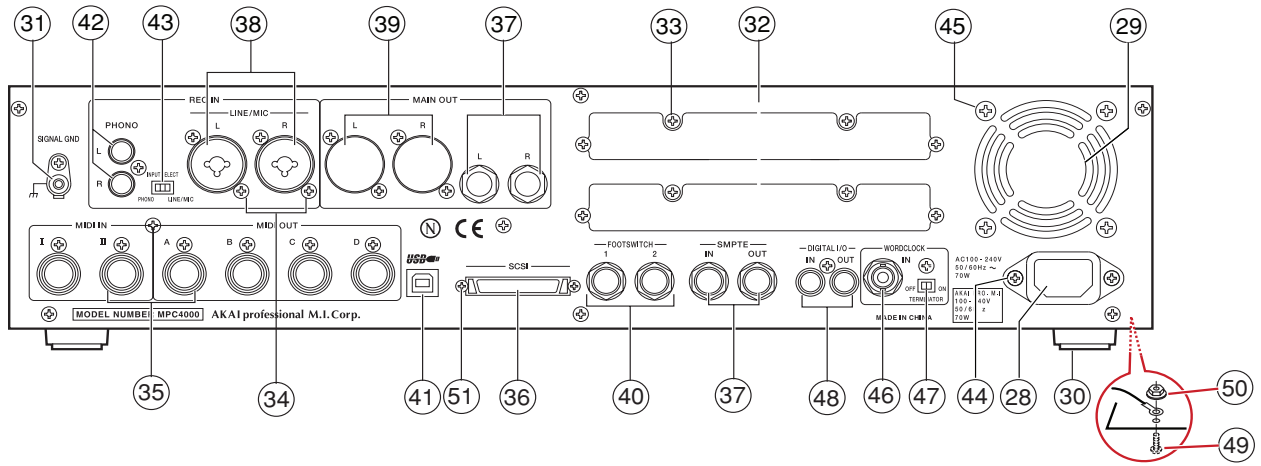
| Ref.No. | Part No. | Description |
|---------|-------------------|-----------------------------------|
| 1 | SP-821144X1 | PANEL TOP |
| 2 | SE-820647X1 | ESCUTCHEON POWER |
| 3 | SE-810353J | LENS LED |
| 4 | SE-821149X | ESCUTCHEON PANEL |
| 5 | SP-821147X | PANEL FRONT |
| 6 | BUTTON SB-820646X | BUTTON POWER [Pow SW] |
| 6 | SW ES-430685J1 | SW PUSH SDDF3A 02-1 |
| 7 | BUTTON SB-821492X | BUTTON PUSH (A) [White] |
| 7 | SW ES-349474 | SW TACT SKHHAM004A |
| 8 | BUTTON SB-821549X | BUTTON PUSH C-7 [White] |
| 8 | SW ES-349474 | SW TACT SKHHAM004A |
| 9 | BUTTON SB-430328J | BUTTON PUSH C [Black] |
| 9 | SW ES-349474 | SW TACT SKHHAM004A |
| 10 | BUTTON SB-812379J | BUTTON PUSH C-4 [Yellow] |
| 10 | SW ES-349474 | SW TACT SKHHAM004A |
| 11 | BUTTON SB-821429X | BUTTON PUSH C-6 [Purple] |
| 11 | SW ES-349474 | SW TACT SKHHAM004A |
| 12 | BUTTON SB-430327J | BUTTON PUSH B(2) [Red] |

| Ref.No. | Part No. | Description | Ref.No. | Part No. | Description |
|---------|--------------------|---|---------|-----------------|--|
| 12 | SW ES-415015J | SW TACT SKQEAD | 47 | ES-428287J | SW SLIDE SSSF112-S06N1 1-02N [Termineter] |
| 13 | BUTTON SB-821550X | BUTTON PUSH B(5) [White] | 48 | EJ-820754X | PIN J YKC21-3079 P2P [DIGITAL I/O] |
| 13 | SW ES-415015J | SW TACT SKQEAD [TAP TEMPO ONLY] | 49 | ZS-322570 | ST BID40X08STL NI3 |
| 13 | SW ES-337521 | SW TACT SKHHAL [PADBANK,NEXT,etc] | 50 | ZW-413267 | N FRANGE 40STL CMT |
| 14 | BUTTON SB-820334X | BUTTON PUSH B(4) [Black] | 51 | ZS-812613J | PAN25X06STL NI3 [SCSI JACK] |
| 14 | SW ES-415015J | SW TACT SKQEAD [PLAY,STOP,PLAY ST.] | 52 | △ EJ-405424J | PLUG ADAPTOR KPR-25 J |
| 14 | SW ES-337521 | SW TACT SKHHAL [Q-LINK SEQ, PAD ASSING,etc] | 53A | △ EW-380905J | AC CORD 250S KP300 KS16A H B J [J] |
| 15 | PAD SE-820582X | PAD CH-SE3 [Black] | 53B | △ EW-368420J1 | AC CORD200SKP30KS16 B AC [A] |
| 15 | SENSOR BA-379695J1 | PC PAD SENSOR | 53C | △ EW-403993J | AC CORD200SKP4819DKS31A B E [E] |
| 16 | KNOB SK-821427X | KNOB VOL LOWER PART (2) [REC LOWER] | 53D | △ EW-419170J | AC CORD200S KP610 KS31A B [B] |
| 17 | KNOB SK-821426X | KNOB VOL UPPER PART (2) [REC UPPER] | 54 | EW-821111X | WIRE ASSY L4016(12) AMP 40P [ATA-40pin] |
| 17 | VOL EV-821124X | VR ROTARY RK1612220 L25RD203X2 | 55 | ZS-418538J | PAN N06-32UNCX5MM STL CMT [for HD] |
| 18 | KNOB SK-821438X | KNOB VOL PART(12) [MAIN] | 56 | ZS-417137 | BID30X04STL CMT [for ZIP] |
| 18 | VOL EV-821123X | VR ROTARY RK16312A0 L25 B103X2 | 57 | EW-821112X | WIRE ASSY L4016(13) AMP-AMP 4P [Power Cable] |
| 19 | KNOB SK-821152X | KNOB JOG [JOG] | 58 | ZW-302909 | RV NYL30X035 BL |
| 19 | VOL ES-821084X | ROTARY ENCORDER REC16B25- 201-C | 59 | EW-821537X | WIRE ASSY L4016(19) JST-MLX 2P [Digital Cable] |
| 20 | KNOB SK-821430X | KNOB SLIDE (C) [Q-LINK] | 60 | EW-821536X | WIRE ASSY L4016(18) JST-MLX 4P [Analog Cable] |
| 20 | VOL EV-812350J | VR SLIDE RS45112 L15 B103X2 SP | 61 | EH-821634X | FILTER EMI TFC-16-8-13F WO/OP [for HD Power Cable] |
| 21 | KNOB SK-821439X | KNOB VOL PART(13) [Q-LINK] | 62 | BA-LJ038A020A | PC POWER BLK SPS-80 [Power BLK] |
| 21 | VOL EV-812348J | VR ROTARY RK14K124 L20 B103X2 | 63 | KNOB SK-821432X | KNOB VOL(F) [Head Phone] |
| 22 | SP-821145X | PANEL SIDE(L) | 63 | VOL EV-821235X | VR ROTARY RK0971220 L15 B103X2 |
| 23 | SP-821146X | PANEL SIDE(R) | 64 | ZW-273914 | SW40 |
| 24 | ZS-821548X | SCREW TOP COVER NI | 65 | ZW-413188 | N40STL CMT 1 |
| 25 | ZS-821678X | WASHER TOP | 66 | EJ-821000X | PHONE J YKB26-5264 S.NUT 6.3 |
| 26 | SK-821679X | SPACER SLIDE | 67 | EJ-820970X | SOCKET CONNECTER YKF45-0001 4P [USB-A] |
| 27 | BUTTON SB-821151X | BUTTON CURSOR [CURSOR] | 68 | ES821122X | SW PUSH SPUJ19B-2N-*W 2-02- 02N [REC GAIN] |
| 27 | SW ES-349474 | SW TACT SKHHAM004A | | | |
| 28 | EJ-358632J2 | SOCKET INLET SOT-16 3P [AC INLET] | | | |
| 29 | BM-821374X | MOTOR FAN 109R0612F402 L=230 [MOTOR FAN] | | | |
| 30 | SA-311742 | FOOT ROUND SHAPED [FOOT] | | | |
| 31 | EJ-329610 | TERMINAL W/SCREW UB-0067 L 1P [Signal GND] | | | |
| 32 | SP-821155X | PANEL REAR | | | |
| 33 | ZS-331182 | BT BID30X08STL BNI | | | |
| 34 | ZS-396044 | BID30X08STL BNI | | | |
| 35 | EJ-430956J | DIN J YKF51-5058 2X5P [MIDI I/O] | | | |
| 36 | EJ-812347J | SOCKET FCN-235D050-G/J 50P [SCSI I/O] | | | |
| 37 | EJ-821386X | PHONE J YKB22-5264 NUT 6.3 [MAIN OUT] | | | |
| 38 | EJ-820762X | SOCKET RECEPTACLE NCJ9FI-H-0 [XLR IN] | | | |
| 39 | EJ-386340J | SOCKET RECEPTACLE XLB3- 32PCVM1 [XLR OUT] | | | |
| 40 | EJ-821219X | PHONE J YKB22-5244 NUT 6.3 [FOOT SW] | | | |
| 41 | EJ-820316X | SOCKET CONNECTER YKF45-0001 4P [USB-B] | | | |
| 42 | EJ-821443X | PIN J YKC21-4042 P2P [PHONO IN] | | | |
| 43 | ES-821121X | SW SLIDE SSSF142-S09N0 4-02N [INPUT SEL] | | | |
| 44 | ZS-820481X | BT PAN30X08STL BZN C080 [AC INLET] | | | |
| 45 | ZS-388940J | BID40X35STL BNI | | | |
| 46 | EJ-820150J | SOCKET COAX. BNC-LNRD-BPAA [Word Clock] | | | |

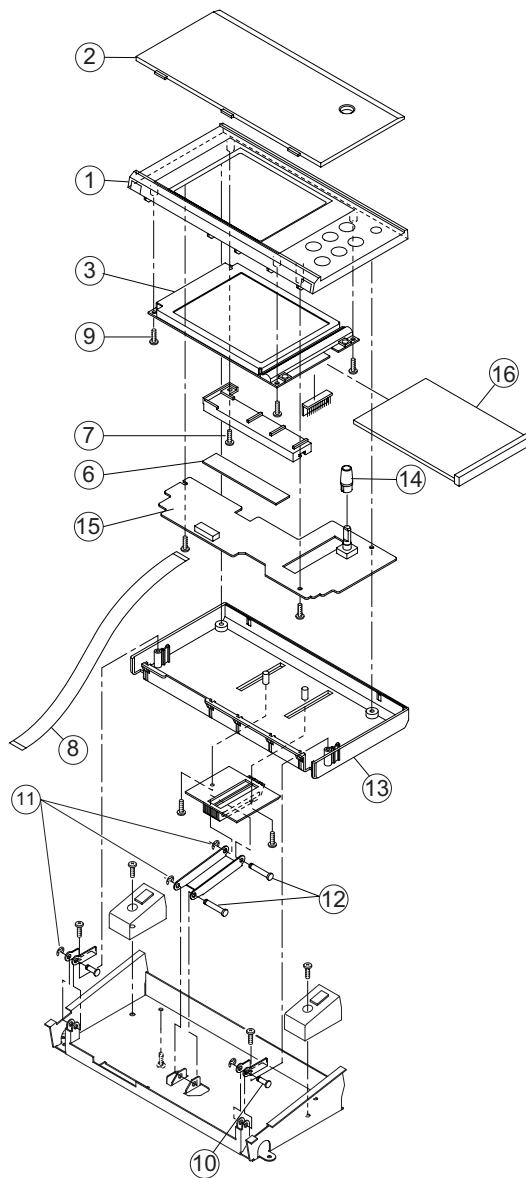
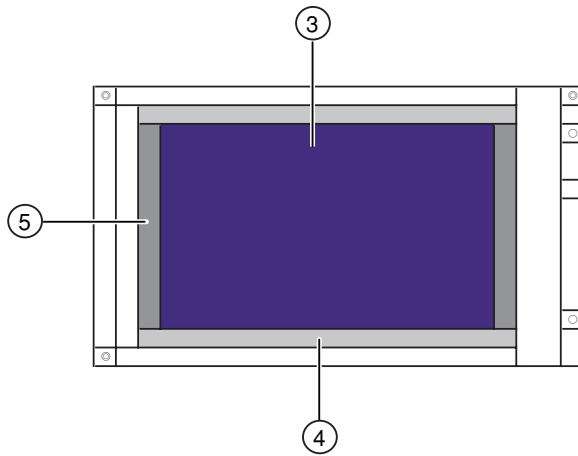
FINAL ASSEMBLY BLOCK



FINAL ASSEMBLY BLOCK



LCD BLOCK



VII. INFORMATION OF ICs

1. IC Explanation.

1-1 IC1 SA1110B (Intel CPU)
 206MHz version chip.
 CPU clock : 176.9MHz.
 SDRAM (CPU work memory) : 88.45MHz (=176.9MHz/2)

1-1-2 Pin Descriptions

| Signal name | Dir | Explanation |
|-------------|-----|---|
| D[31:0] | i/o | Data-bus |
| A[25:0] | out | Address-bus |
| SDCKE1 | out | SDRAM clock enable for CPU's work memory |
| SDCLK1 | out | SDRAM clock for CPU's work memory.(88.45MHz) |
| SDCLK2 | out | Not used though this is connected.(44.225MHz) |
| /SDRAS | out | SDRAM RAS for CPU's work memory |
| /SDCAS | out | SDRAM CAS for CPU's work memory |
| /SDCS0 | out | SDRAM CS for CPU's work memory |
| DQM[3:0] | out | SDRAM data out mask enable for CPU's work memory |
| /OE | out | Output enable (/RD) |
| /WE | out | Write enable |
| /Cs[5:0] | out | Chip select |
| RDY | in | Data ready signal for /CS[5:3] |
| RD/nWR | out | Read/write direction control |
| /RESET | in | Hard reset. Active low. |
| PXTAL | in | Input for 3.686MHz crystal (non-CMOS threshold) |
| PEXTAL | out | Output for 3.686MHz crystal (non-CMOS level) |
| GP0 | in | Interrupt from Voice-LSI |
| GP1 | in | Interrupt from SCSI controller (FAS236U) |
| GP2 | in | Interrupt from IDE |
| GP3 | in | Interrupt from USB-host controller (SL811HST) |
| GP4 | in | Interrupt from effect board |
| GP5 | in | Interrupt from MIDI (Voice-LSI) |
| GP6 | in | Interrupt from USB-function controller (NET2890) |
| GP7 | in | Interrupt from SMPTE option (MPC only) |
| GP8 | in | Interrupt from FPGA |
| GP9 | in | Interrupt from Voice-LSI |
| GP11 | out | Initialize FPGA. active high. |
| GP13 | out | DIMM SPDA for reading information. |
| GP14 | out | DIMM SPCL for reading information. |
| GP15 | out | LCD DISP off. Active low.(MPC only) |
| GP16 | in | SCSI jack board recognition. Low=connected. |
| GP17 | out | Control /PROGRAM pin of FPGA during configuration |
| GP18 | in | effect board recognition. Low=connected. |
| GP19 | in | FPGA /INIT. used during configuration. |
| GP20 | out | D/A converter CDTI (control data input) |
| GP21 | in | FPGA done. used during configuration. |
| GP22 | out | Used for ROM emulator. |
| GP23 | out | CPLD TDI. used during configuration in factory. |
| GP24 | out | CPLD TMS. used during configuration in factory. |
| GP25 | out | CPLD TCK. used during configuration in factory. |
| GP26 | in | 8 Para board recognition. Low=connected. |
| GP27 | in | CPLD TDO. used during configuration in factory. |
| RxD_1 | in | DIO board recognition. Low=connected. |
| TxD_1 | in | SMPTE board recognition. Low=connected. |
| RxD_2 | in | RxD. from panel(remocon) 230.4kbps. |
| TxD_2 | out | TxD. to panel(remocon). 230.4kbps. |
| RxD_3 | in | ADAT board recognition. Low=connected. |
| TxD_3 | in | for future. (Low When ADAT board is exist now) |
| RxD_C | in | CD analog recognition. Low=connected.(MPC only) |

| Signal name | Dir | Explanation |
|-------------|-----|---|
| TxD_C | in | CD digital recognition. Low=connected.(MPC only) |
| SCLK_C | in | BM1. Machine recognition. Low=Z4/8. High=MPC. |
| SFRM_C | in | BM0. Connected GND now. for future. |
| LDD[7:0] | out | LCD controller display data. |
| L_BIAS | out | LCD ac bias drive. |
| L_PCLK | out | LCD pixel clock. |
| L_LCLK | out | LCD line clock. |
| L_FCLK | out | LCD frame clock. |
| TXTAL | in | Not used.(Clock for CPU's real-time clock) |
| ROM_SEL | in | ROM bus width select. Low=16bits. |
| SMROM_EN | in | SMROM enable. Low= disable. |
| /PIOR,/PIOW | out | PCMCIA I/o read/write for ROM Emulator |
| /IOIS16 | in | PCMCIA 16-bit I/O data transfers for ROM Emulator |
| TCK_BYP | | |
| TESTCLK | in | Test pin |
| GP10,/PCE1 | | |
| /PWAIT | | |
| BATT_FAULT | | |
| VDD_FAULT | out | # Not used though this is connected # |
| VDD | - | Positive supply for the core. +1.75V |
| VDDX | - | Positive supply for the pins. +3.3V |
| VSS | - | Ground supply. |
| VSSX | - | Ground supply for the I/O pins. |

1-3. IC3,4 HM5264165FTT (64Mbit SDRAM (4Mword x16bit))

Wave RAM for Voice LSI

The clock changes by the value of sampling frequency.

44.1kHz: 33.869MHz (= fsx768)

48kHz : 36.864MHz (= fsx768)

96kHz : 36.864MHz (= fsx384)

If there is no DIMM, SDRAM is placed in zero address.

If there is DIMM(s), SDRAM is placed in last address.

1-4. IC5,6 HY57V281620AT-P (128Mbit SDRAM (8Mword x16bit))

CPU work RAM

This clock is set to half of CPU core clock by software.

("88.45MHz" When CPU clock is 176.9MHz.)

1-5. IC7 MBM29DL322TE90TN (32Mbit Flash ROM (2M word x16bits))

CPU Boot ROM

(If ROM-card is inserted in J7, system boot up from ROM card.)

1-6. IC8 XC95144XL-7TQ100C (Complex programmable logic (CPLD).

Address decoder.

Expansion port by using data-latch.

Communication logic for RTC.

Selector.

1-6-2. Pin Descriptions

| Signal name | Dir | Explanation |
|-------------|-----|--|
| D[7:0] | i/o | Connected with CPU data bus for communication. |
| A[24:21] | in | Connected with CPU address bus for communication. |
| /CS[5:0] | in | Chip select for other device. |
| /RD | in | Data output enable of CPU data bus. |
| /WR | in | Data strobe of CPU data bus. |
| /RESET | in | For initializing logic. Active low. |
| /GWR,/FWR | out | buffered /WR. (= /WR) |
| /GDB | out | Gate of buffer for logic on CPU board. |
| /GDB2 | out | Gate of buffer for logic except for CPU board. |
| ROMCARD | in | ROM card. L: not inserted (normal), H: inserted. |
| /FLASH_CS | out | Chip select for Flash-ROM. /CS0 OR (A24 XOR ROMCARD). |
| /ROM_CS | out | Chip select for ROM-card. /CS0 OR (/A24 XOR ROMCARD). |
| /SCSI_CS | out | Chip select for SCSI controller. /CS5 OR A24. |
| /USBF_CS | out | Chip select for USB host controller. /CS5 OR /A24. |
| FPCCLK | out | FPGA configuration clock on CPU PCB. |
| /EB_CS | out | Chip select for DSP on effect PCB. |
| FP2_CCLK | out | FPGA configuration clock on ADAT PCB. |
| /ADAT_CS | out | Chip select for FPGA on ADAT PCB. |
| /SMPTE_CS | out | Chip select for controller on SMPTE PCB. |
| /DIO_CS | out | Chip select for CPLD on DIO PIB. |
| /LSI_RESET | out | Reset Voice-LSI. Active low. |
| /VO_PLLRST | out | Reset PLL of Voice-LSI. Active low. |
| /IDE_RESET | out | Reset IDE. |
| /ADAT_INIT | out | Initialize FPGA and IC on ADAT PCB. Active low. |
| /EB_RESET | out | Reset DSP on effect PCB. Active low. |
| VO_SIN[1:0] | out | Audio serial data to Voice-LSI's SIN[1:0] |
| AD_DATA | in | Analog-in audio data from CODEC (A/D at MPC). |
| DIO_RCVD | in | Digital-in audio data from DIO PCB. |
| ADAT_RCVD | in | ADAT-in audio data from ADAT PCB. |
| EB_RTN[3:2] | out | Effect return. |
| /SCSI_TERM | out | SCSI termination. H:off, L:on. |
| /ADA_CS | out | Chip select for CODEC (A/D conv. at MPC). |
| /ADA_PD | out | /PD of CODEC and A/D on MPC. |
| AD_DFS | out | DFS of a/d converter on MPC. |
| DA_CCLK | out | Control clock for CODEC (D/A conv. at MPC). |
| /DA_CS | out | Chip select for dD/A converter at MPC. |
| /DA_PD | out | /PD of D/a converter's on MPC and DIO. |
| /AD_CDSEL | out | Select analog-out of CD player at MPC. |
| MUTE | out | For mute circuit. H: mute on, L: mute off. |
| LSI_MCLK | in | MCLK of Voice-LSI. Make synchronous reset for Voice LSI. |
| RTC_D[7:0] | i/o | RTC data bus. |
| RTC_AS | out | Control for RTC |
| RTC_DS | | |
| RTC_RW | | |
| /RTC_SEL | | |
| /RTC_XALM | | |
| WCKE[1:0] | out | Clock enable of wave SDRAM and DIMM. |
| SEL_XTAL0 | out | X2 output enable. H: enable, L: disable. |
| SEL_XTAL1 | out | X3 output enable. H: enable, L: disable. |
| MOTOR_ON | out | Control fan on MPC. |

| Signal name | Dir | Explanation |
|----------------------|-----|--|
| /FP2_PROG | out | For configuration to FPGA on ADAT PCB. |
| PLD2_TMS PLD2_TDI | out | For configuration to CPLD on DIO. |
| PLD2_TDO | in | For configuration to CPLD on DIO. |
| TCK,TMS,TDI | in | For configuration.(TCK is also used for CPLD on DIO) |
| TDO | out | For configuration. |
| VCCINT | - | Positive supply for internal logic. +3.3V |
| VccIO | - | Positive supply for output driver. +3.3V |
| GND | - | Ground supply. |

1-7. IC9 XC2S100-5TQ144C (Field Programmable Gate Arrays (FPGA))

IDE controller.

DMA controller between Voice-LSI and IDE/SCSI.

MIDI interface.

1-7-2. Pin Descriptions

| Signal name | Dir | Explanation |
|-------------|-----|---|
| CD[15:0] | i/o | Connected with CPU bus for communication. |
| A[5:0] | in | Connected with CPU address bus for communication. |
| /IDE_CS | in | Chip select for this FPGA. |
| /CPU_RD | in | Data output enable of CPU bus. |
| /CPU_WR | in | Data strobe of CPU bus. |
| RESET | in | Initialize FPGA logic. Active high. |
| LSI_D[15:0] | i/o | Connected with DMA data bus of Voice-LSI. |
| IDE_D[15:0] | i/o | Connected with data bus of IDE. |
| IDE_DA[2:0] | out | Connected with DA[2:0] of IDE I/F |
| /IDE_CS1,0 | out | Connected with CS[1:0] of IDE I/F. |
| /IDE_IORD | Out | Connected with /DIOR_HD of IDE I/F. |
| /IDE_DIOW | Out | Connected with /DIOW_STOP of IDE I/F. |
| IORDY | in | Connected with IORDY of IDE I/F. |
| /IDE_DMACK | out | Connected with /DMACK of IDE I/F. |
| IDE_DMARQ | in | Connected with DMARQ of IDE I/F. |
| CPU_RDY | out | Connected with CPU RDY. |
| SCSI_DMAREQ | in | Connected with SCSI controller. DMA control. |
| /SCSI_DMACK | out | Connected with SCSI controller. DMA control. |
| LSI_DMAREQ | out | Connected with Voice-LSI. DMA control. |
| /LSI_DMAACK | in | Connected with Voice-LSI. DMA control. |
| /LSI_DMARD | in | Connected with Voice-LSI. DMA control. |
| /LSI_DMAWR | in | Connected with Voice-LSI. DMA control. |
| /INT_DMA | out | Interrupt request output of DMA to CPU. Active low. |
| LRCK | in | Word clock of system. Connected with Voice-LSI. |
| SFrame | out | Pin No.133. Frequency= Fs/256. duty cycle= 255:1. |
| MIDI_IN1,2 | in | MIDI 2 input. |
| MIDI_OUT1-4 | out | MIDI 4 output. |
| /INT_MIDI | out | Interrupt request output of Midi to CPU. Active low. |
| MCLK | in | Master clock of FPGA logic. |
| CCLK | in | Configuration clock I/O pin. |
| /INIT | i/o | For configuration. Active Low. |
| /PROGRAM | in | Initiates a configuration sequence when asserted Low. |
| DONE | i/o | Indicates that configuration is complete. open drain. |
| M0,M1,M2 | in | configuration mode pin. |
| TCK,TMS,TDI | in | # Not used though this is connected # |
| VCCINT | - | Power supply for internal core logic. +2.5V |
| VccO | - | Power supply for output driver. +3.3V |
| GND | - | Ground supply. |

1-8. IC10 SL811HST (USB Host/Slave Controllers).

1-8-2. Pin Descriptions

| Pin No. | Signal name | Dir | Explanation |
|---------|-------------|-----|---|
| 3 | /WR | in | Write Strobe. Active low. |
| 4 | /CS | in | Chip select. Active low. |
| 5 | CM | in | Clock mode. H: at 12MHz. L: at 48MHz clock source. |
| 6 | USBVDD | - | Power for USB Transceivers. |
| 7 | DATA+ | i/o | USB Differential Data Signal High Side. |
| 8 | DATA- | i/o | USB Differential Data Signal Low Side. |
| 9 | USBGND | - | Ground Connection for USB. |
| 16 | CLK/X1 | in | Clock or External Crystal X1 connection. |
| 17 | X2 | out | External Crystal X2 connection. |
| 18 | /RST | in | SL811HST Device reset. Active low. |
| 19 | INTRQ | out | Interrupt Request output. Active high. |
| 21,39 | D[7:0] | i/o | Connected with CPU bus for communication. |
| 27-29 | | | |
| 31-33 | | | |
| 40 | M/S | in | Master/Slave Mode select. H: Slave. L: Master. |
| 42 | A0 | in | L:Addr.Pointer.Register. H:Data Buffer or Register. |
| 43 | /DACK | in | DMA Acknowledge. Active low. |
| 44 | /DRQ | Out | DMA Request. Active low. |
| 45 | /RD | in | Read Strobe Input. Active low. |
| 15,41 | VDD | - | Device VDD Power. |
| 9,20 | GND | - | Device Ground. |
| 30 | | | |

1-9. IC11 FAS236U (SCSI Controller)

1-9-2. Pin Descriptions

| Pin No. | Signal name | Dir | Explanation |
|---|-------------|-----|--|
| 100 | DREQ | out | DMA request. H: ready to transfer data. |
| 1 | /DACK | in | DMA acknowledge. |
| 2 | /DBWR | in | Data-bus write control. |
| 4 | IGS | out | Indicates that chip is acting in initiator mode. |
| 5 | DIFFSENS | in | H: differential mode. |
| 6 | TGS | out | Indicates that chip is acting in target mode. |
| 7 | EDIFFS | in | H: Enable "DIFFSENS" function. |
| 8-15 19-26 | DB[15:0] | i/o | DMA data-bus. |
| 16,27 | DBP[1:0] | i/o | DMA data-bus parity. |
| 29-36 | /SDI[7:0] | in | SCSI data bus. |
| 37 | /SDIP | in | SCSI data parity. |
| 42-45 48-51 | /SDO[7:0] | out | SCSI data bus. |
| 52 | /SDOP | out | SCSI data parity. |
| 56 | /SELO | out | SCSI bus select. |
| 57 | /BSYO | out | SCSI bus busy. |
| 58 | /REQO | out | SCSI bus request. |
| 59 | /ACKO | out | SCSI bus acknowledge. |
| 62 | /MSG | i/o | SCSI bus message phase. |
| 63 | /CD | i/o | SCSI bus control and data phase. |
| 64 | /IO | i/o | SCSI bus I/O phase. |
| 65 | /ATN | i/o | SCSI bus attention. |
| 66 | /RSTO | out | SCSI bus reset. |
| 69 | /SELI | in | SCSI bus select. |
| 70 | /BSYI | in | SCSI bus busy. |
| 71 | /REQI | in | SCSI bus request. |
| 72 | /ACKI | in | SCSI bus acknowledge. |
| 73 | /RSTI | in | SCSI bus reset. |
| 74,75 | MODE[1:0] | in | Bus configuration mode select. |
| 76 | /INT | out | Interrupt output. |
| 77 | RESET | in | Power reset. |
| 79 | /WR | in | Write control. |
| 80 | /RD | in | Read control. |
| 81 | /CS | in | Chip select. |
| 82-85 | A[3:0] | in | Address bus. |
| 86 | CLK | in | Internal chip timing clock. |
| 87 | /DIFFM | in | H: single-ended mode. L: differential mode. |
| 90-93 96-99 | PAD[7:0] | i/o | PAD bus. Connected with CPU for communication. |
| 38,88 | VDD | - | +5V DC power input. |
| 17,18,40 41,46,47 54,55,60 61,67,68 94,95 | Vss | - | GROUND. 0V DC power return. |

- 1-10 IC12, 16 ALVCH16245 (16 bit Bus bidirectional transceivers)
- 1-11 IC13-15 ALVCH16244 (16 bit Bus Buffers)
- 1-12 IC17, 18 LVC244 (8 bit Bus Buffers)
- 1-13 IC19 LVC245 (8 bit Bus bidirectional transceivers)
In particular, this is used for changing 5V into 3.3V.
- 1-14 IC20 M51957B (System Reset IC. Delay time is about 0.34 sec)
- 1-15 IC21, 22 NJM317 (Regulator IC)
IC21: regulate +2.5V for FPGA.
IC22: regulate +1.75V for CPU.

1-16. IC23 NET2890 (USB function controllers)

1-16-2. Pin Descriptions (PU:pull-up, PD:pull-down)

| Pin No. | Signal name | Dir | Explanation |
|-------------------|-------------|-----|---|
| 2 | /SOF | out | Start of Frame. Active low. |
| 3,4 | DP,DM | i/o | USB data port. differential data. |
| 5-11 | D[7:0] | i/o | bi-directional 8-bit data bus. |
| 14 | | | Connected with CPU for communication. |
| 15 | /CS | in | Chip select. Active low. (PU) |
| 16 | LCLK | out | buffered clock output. |
| 17 | /IOR | in | I/O read strobe. Active low. (PU) |
| 18 | /IOW | in | I/O write strobe. Active low. (PU) |
| 19 | DRQ | out | DMA request. |
| 20 | /DACK | in | DMA acknowledge. Active low. (PU) |
| 21 | /EOT | in | End of transfer. Active low. (PU) |
| 22 | /BUSPWR | in | Indicates that external logic is powered by USB bus. Alternatively general input. |
| 23 | /PWRGOOD | in | Indicates that external power supply used for self-powered mode is operational. Alternatively general input. |
| 26 | /IRQ | out | Interrupt Request. Active low. |
| 27 | /USBOE | i/o | USB port output enable. Active low. (PU) |
| 28 | /DEVCFG | out | Device config. Alternatively general output. (PD) |
| 30 | TEST | in | Test. Connect this pin to ground. (PD) |
| 32 | /LRESET | out | Local reset. Active low. (PU) |
| 33 | /SUSP | out | Device suspended. Active low. (PU) |
| 34 | /WAKEUP | in | USB remote wakeup. Active low. (PU) |
| 35 | /RESET | in | External reset. (PU) |
| 38-42 | A[4:0] | in | Address bus. |
| 44 | CLKIN | in | 48 MHz Oscillator input. |
| 45 | CLKOUT | out | 48 MHz Oscillator output. |
| 47 | TESTOUT | out | Test output. Used for manufacturing test. |
| 31 | VDD_LOCAL | - | +3.3V or +5V DC power input for CPU I/F. |
| 1,13,25 37,43 | VDD | - | +3.3V DC power input for the core and USB I/F. |
| 12,24,36 46,48 | Vss | - | GROUND. 0V DC power return. |

Appendix: Installing storage devices (for service engineers)

This appendix explains how to install storage devices (ATA hard disk, CD-ROM drive, Zip drive, etc.) in the MPC4000.

Check the included items

The following items are included with the MPC4000 for use when installing storage devices. Check to make sure that no items are missing.

■ Cables

- Flat cable for ATA drive
- Power cable for drive (without ferrite core)
- Power cable for drive (with ferrite core)
- Analog audio cable for CD-ROM
- Digital audio cable for CD-ROM
- Drive Mount Bracket (S)
- Drive Mount Bracket (L)

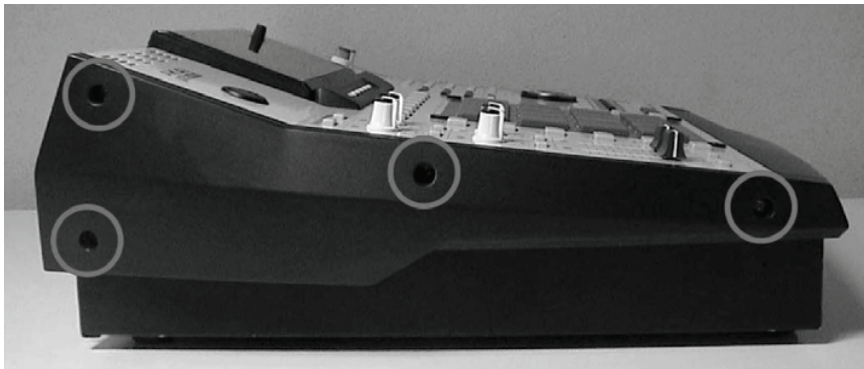
■ Other items

- Screws (inch) for attaching hard disk (4 pcs.)
- Screws (metric) for attaching hard disk (4 pcs.)
- Screw hole plugs (4 pcs.)
- Screws (metric) for attaching Drive Mount Bracket (8 pcs.)

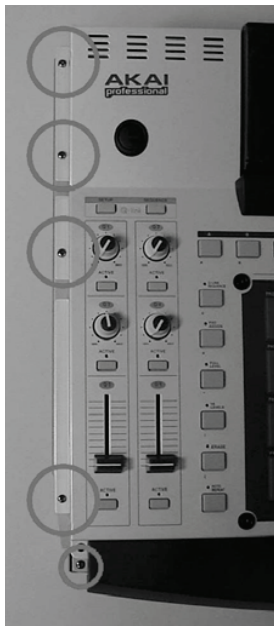
Opening the top panel

When installing a storage device, use the following procedure to open the top panel of the MPC4000.

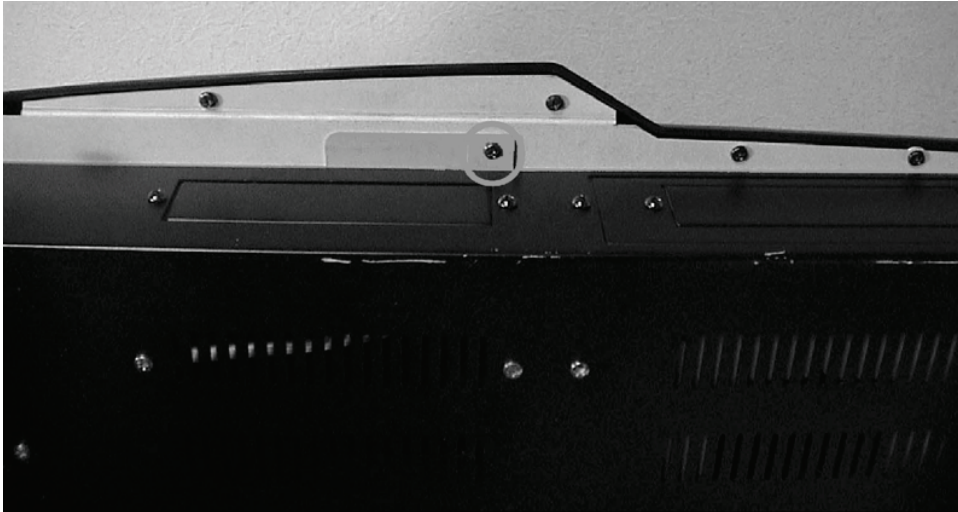
1. Loosen the screws that fasten the side panels (four on each side, left and right), and remove the side panels.



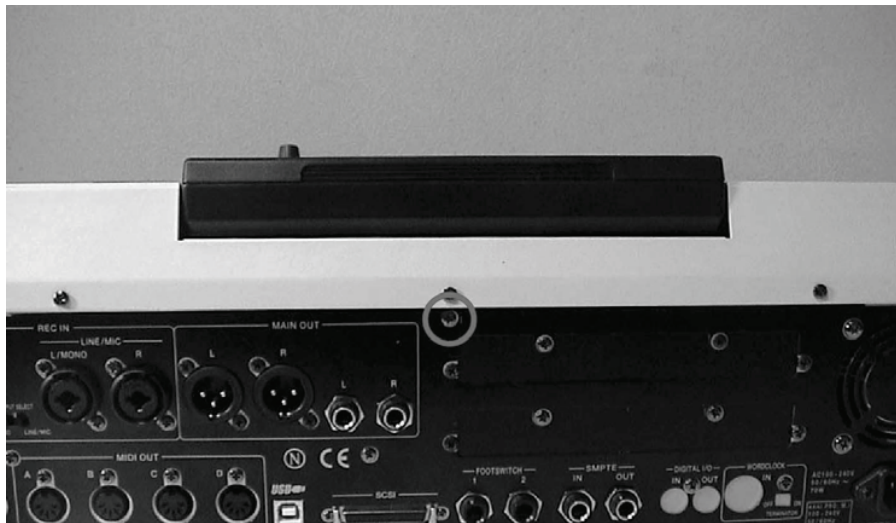
2. Remove the screws (five on each side, left and right) that fasten each side of the top panel to the chassis.



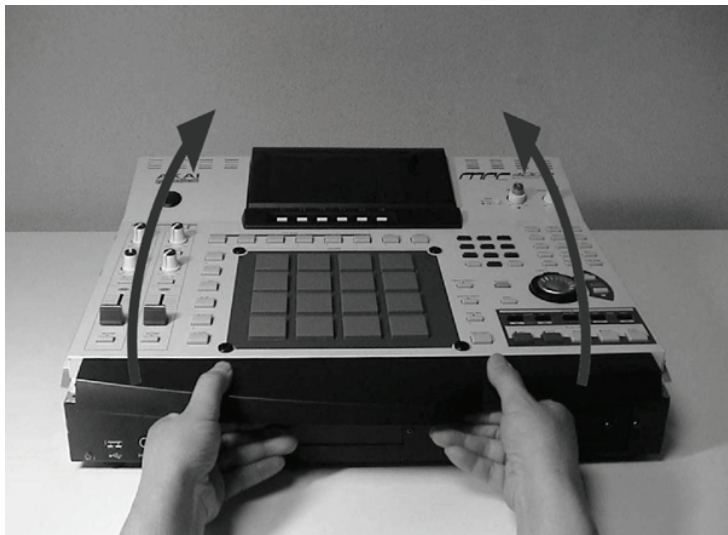
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- Remove the screw (located in the center of the front panel) that fastens the top panel from the lower front side.



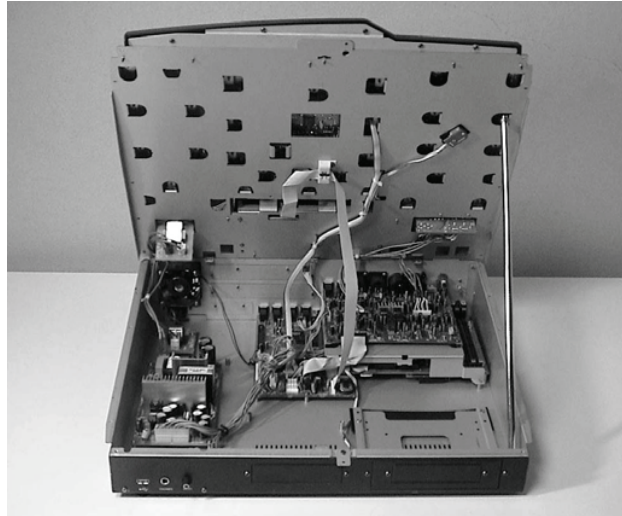
- Remove the screw (located in the center of rear panel) that fastens the top panel from the rear side.



- Use both hands to lift the protrusion on the front of the top panel, and open the top panel.

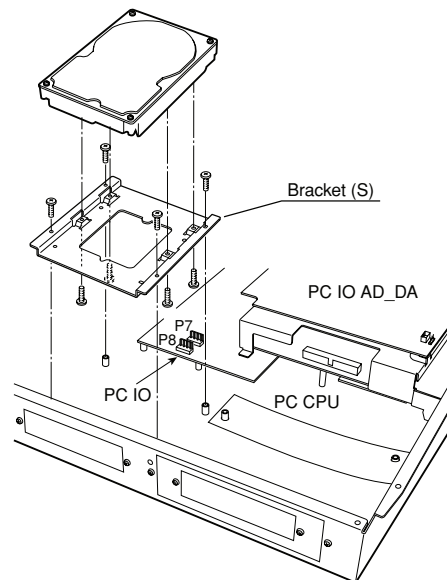


-
- Use a metal rod or similar object as a prop inside the chassis to hold up the top panel. The side panels and screws you removed must be kept in a safe place. To close the top panel, re-tighten the screws in the opposite order to which they were removed.

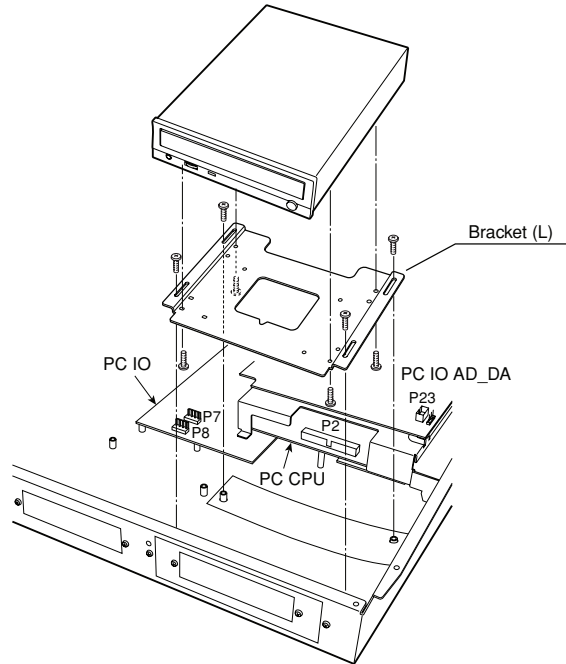


Installing a drive

- If you are installing a removable-media drive such as a CD-ROM drive or Zip drive, remove the blank panel from the front panel.
- Use the hard disk attachment screws (included with the MPC4000) to attach the drive to the bracket, and attach the bracket to the bottom panel of the chassis. Use the bracket in the correct direction (as illustrated or on reverse side) according to the drive mounted.
When installing a drive in the 3.5 inch bay



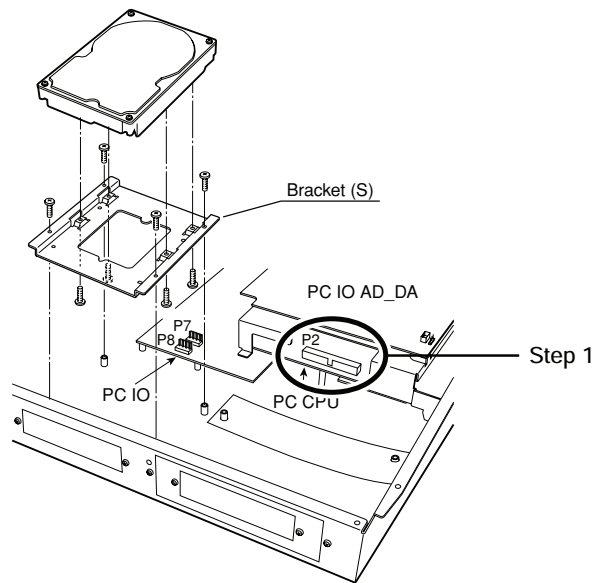
When installing a drive in the 5 inch bay



Cable connections

Connecting the flat cable

1. Remove two screws from the cover that conceals the PC CPU board.
When you remove the cover, you will see the P2 connector for the ATA drive.



2. Insert the blue connector of the included flat cable into the P2 connector of the PC CPU board.
3. Reattach the cover that you removed.
4. Connect the other end of the flat cable to the drive.

Connecting the power cable

1. Insert the connector of the included power cable into the P7 connector or P8 connector of the PC I/O board.
Use the power cable with the ferrite core if you are installing a hard disk. Use the power cable without a ferrite core if you are installing a Zip drive or CD-ROM drive.
2. Connect the other end of the power cable to the drive.

Connecting the CD-ROM analog audio cable

If the CD-ROM drive has an analog audio output connector, connect it to the MPC4000's circuit board as follows.

1. Insert the connector of the included CD-ROM analog audio cable into the P23 connector of the PC I/O ADDA board.
2. Insert the other end of the CD-ROM analog audio cable into the analog audio output connector of the CD-ROM drive.
Make connections so that the red cable goes to R (right channel) and the white cable to L (left channel).
3. On the PC I/O ADDA board, plug in the P22 jumper (located in front of P23) at the "SET" position.

Connecting the CD-ROM digital audio cable

If the IB-4D digital I/O option is installed in the MPC4000, connect the digital audio output connector of the CD-ROM drive to the IB-4D as follows.

1. Insert the connector of the included CD-ROM digital audio cable into the digital audio output connector of the CD-ROM drive.
Make connections so that the black cable is the ground.
2. Insert the other end of the CD-ROM digital audio cable into the P1 connector of the IB-4D digital I/O option.
3. On the IB-4D circuit board, plug in the JP1 jumper in the 1-2 (SHORT) position.
* If you connect the analog/digital audio cable and make the correct jumper setting, you will be able to select the CD-ROM playback as the recording source in RECORD mode.

Master/slave settings for ATA drives

If you install two drives, you must set one as the master and the other as the slave. (If a hard disk is installed, set the hard disk as the master.)

For details on how to make master/slave settings, refer to the manual that came with your drive.

Installing Memory Board

The memory slots are on the CPU board and their 2 long DIMM sockets are located on the right-hand side of the unit towards the rear.

Insert the memory board securely in the correct direction. When only one memory board is installed, it can be installed on either slot.

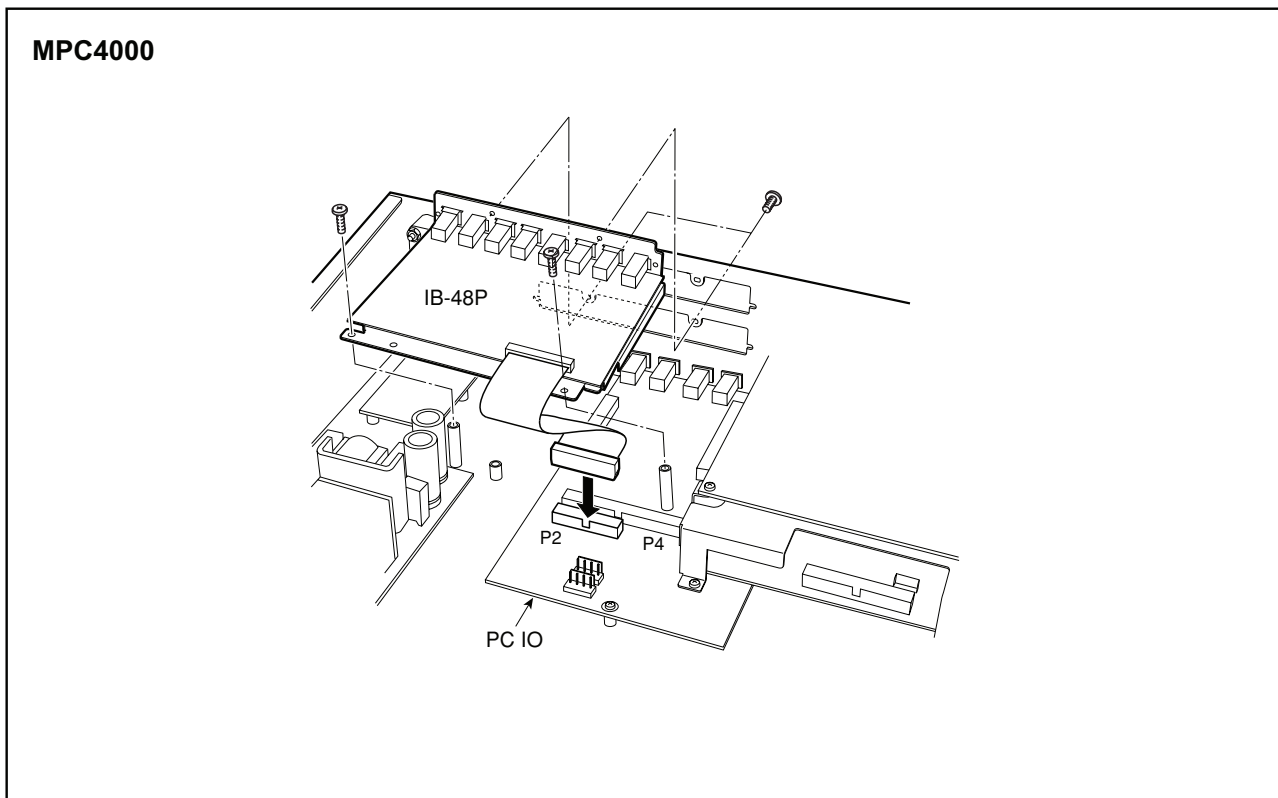
The required memory board is 168-pin DIMM (PC133/PC100, CL2).

* 256Mbit x 8 ICs type 256Mbyte DIMM is not supported. 128Mbit x 16 ICs type is recommended.

■ Installation - MPC4000

1. Remove the fixing screws of the MPC4000 Side Panels (4pcs. on each side) and remove Side Panels. Next, remove the screws (5pcs. on each side) hidden by the Side Panels and then remove the center screws (2pcs.) located underneath the Armrest and the topmost of Rear Panel. The Top Panel Block can be swing-opened by lifting the Armrest from the front. Save the removed screws.
2. Remove the fixing screws (4pcs.) for the Mask Plate (lower slot) on the Rear Panel and remove the Mask Plate. Save the screws for later use. The Mask Plate is not used.
3. Referring to the illustration, remove the fixing screw (1pc.) on the I/O board and install the Mounting Post (S) in its place. Save the screw for later use.
4. Set the IB-48P on the Rear Panel and Mounting Posts and fix it securely with the screws removed in earlier steps and the Fixing Screw (gold) included.
5. Connect the cable from the IB-48P board to the connector (P2) on the I/O board.
6. Replace and fix the Top Panel Block and Side Panels in the opposite order to which they were removed.

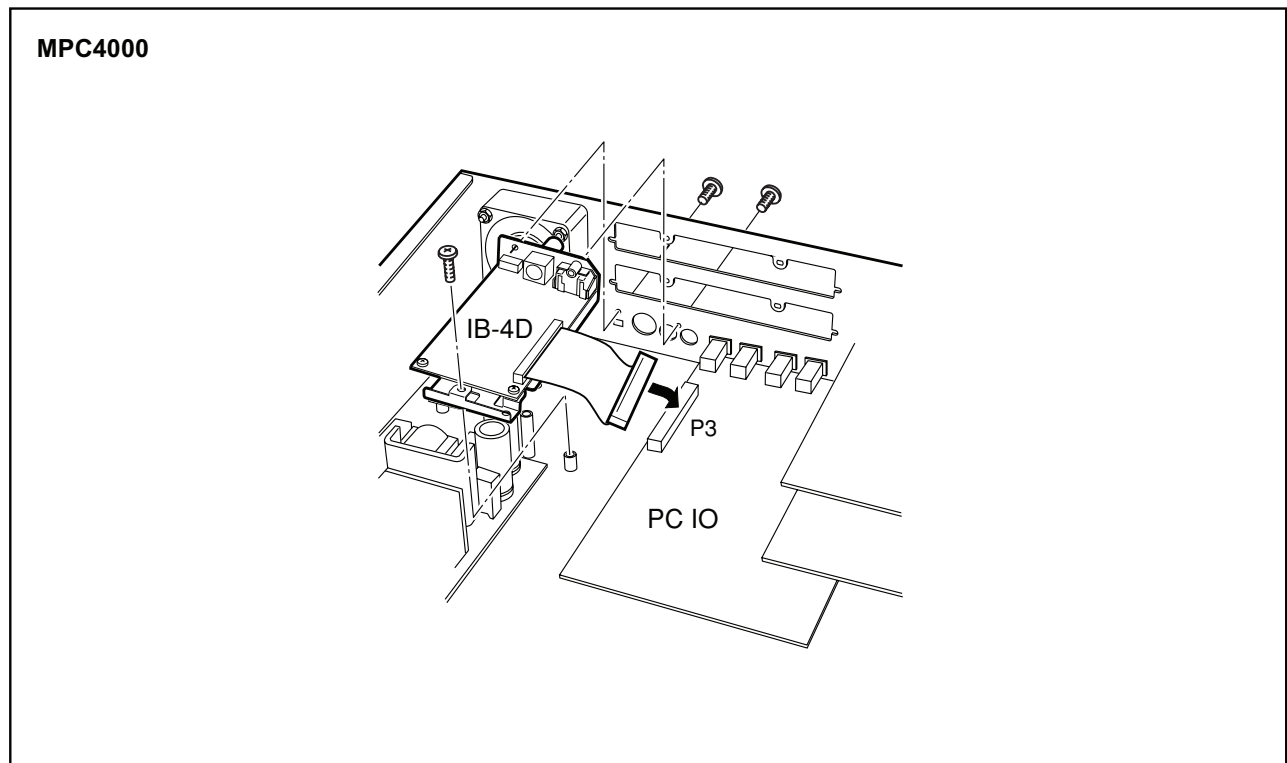
* Be sure to fix the screws and connectors securely to avoid malfunctioning.



■ Installation - MPC4000

1. Remove the fixing screws of the MPC4000 Side Panels (4pcs. on each side) and remove Side Panels. Next, remove the screws (5pcs. on each side) hidden by the Side Panels and then remove the center screws (2pcs.) located underneath the Armrest and the topmost of Rear Panel. The Top Panel Block can be swing-opened by lifting the Armrest from the front. Save the removed screws.
2. Remove the fixing screws (2pcs.) for the Mask Plate on the Rear Panel and remove the Mask Plate. Save the screws for later use. The Mask Plate is not used.
3. Referring to the illustration, set the IB-4D on the Rear Panel and Mounting Post and fix it securely with the screws removed in earlier step and the Fixing Screw included.
4. Connect the cable from IB-4D board to the connector (P3) on the I/O board.
5. Replace and fix the Top Panel Block and Side Panels in the opposite order to which they were removed.

* Be sure to fix the screws and connectors securely to avoid malfunctioning.



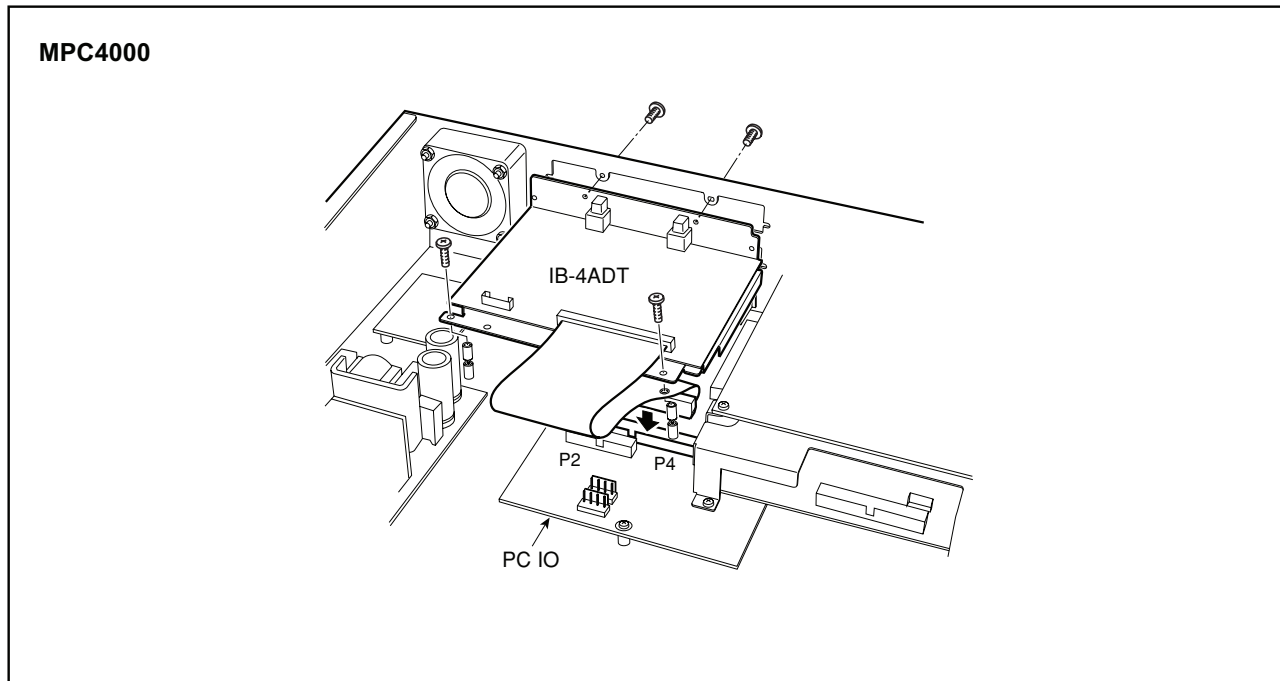
■ Installation – MPC4000

1. Remove the fixing screws of the MPC4000 Side Panels (4pcs. on each side) and remove Side Panels. Next, remove the screws (5pcs. on each side) hidden by the Side Panels and then remove the center screws (2pcs.) located underneath the Armrest and the topmost of Rear Panel. The Top Panel Block can be swing-opened by lifting the Armrest from the front. Save the removed screws.
2. Remove the fixing screws (4pcs.) for the Mask Plate (upper slot) on the Rear Panel and remove the Mask Plate. Save the screws for later use. The Mask Plate is not used.
3. Referring to the illustration, remove the fixing screw (1pc.) on the I/O board and install the Mounting Post (S) in its place. Then extend the 2 Mounting Posts with the 2 Mounting Posts (L) included.
4. Set the IB-48P on the Rear Panel and Mounting Posts and fix it securely with the screws removed in earlier step and the Fixing Screws (gold, 2pcs.) included.
5. Connect the cable from the IB-4ADT board to the connector (P4) on the I/O board.
6. Replace and fix the Top Panel Block and Side Panels in the opposite order to which they were removed.

Note 1: When the IB-48P 8-Individual Output board is installed at the lower slot, remove the fixing screws (2pcs.) of the Mounting Posts for the IB-48P and re place them with the 2 Mounting Posts (L) included and mount the IB-4ADT on them.

Note 2: On the MPC4000 with IB-4D SP-DIF Digital Interface Board installed, Connect the 8-pin Connecting Cable included between the IB-4D (P2) and IB-4ADT (P1) boards.

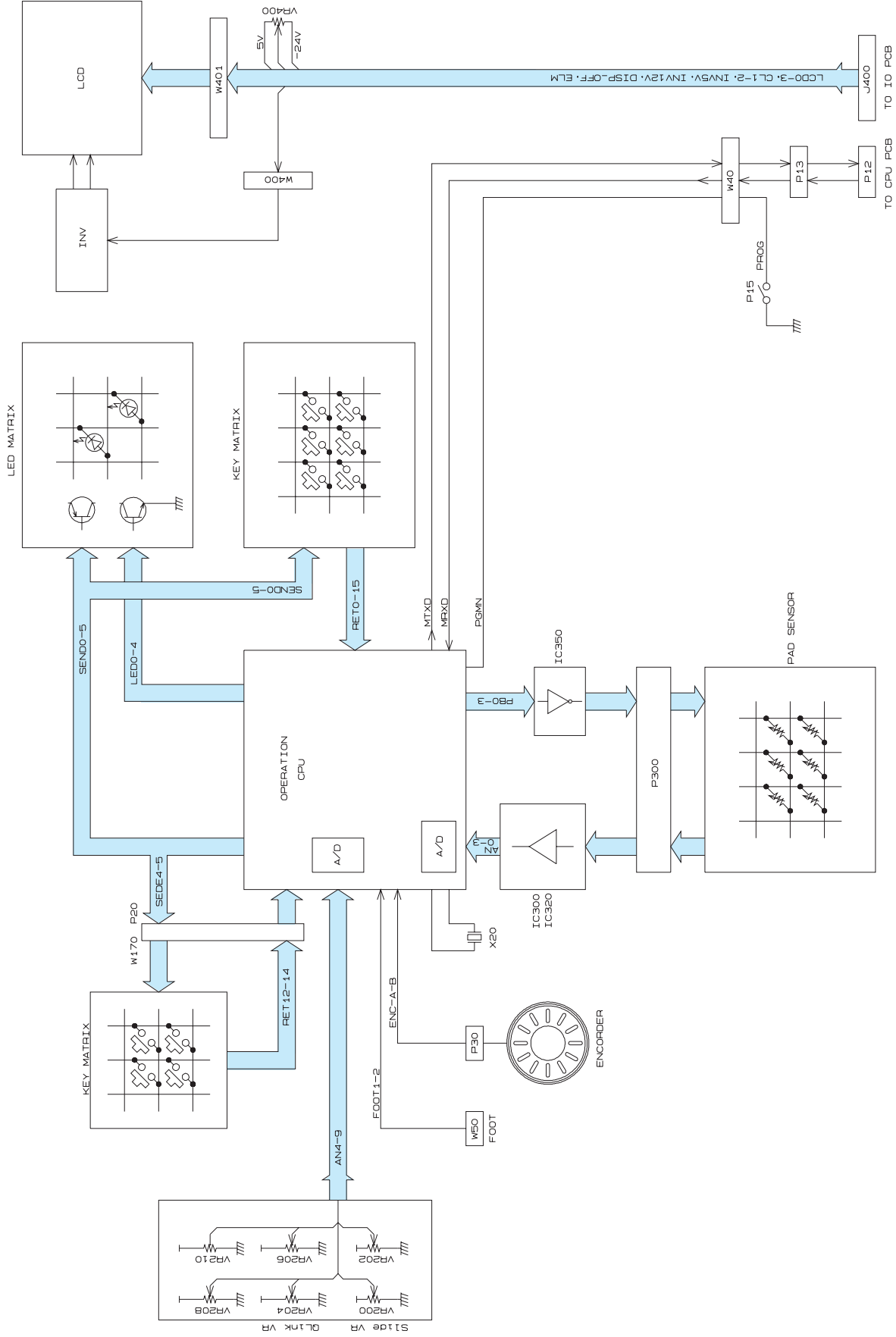
* Be sure to fix the screws and connectors securely to avoid malfunctioning.



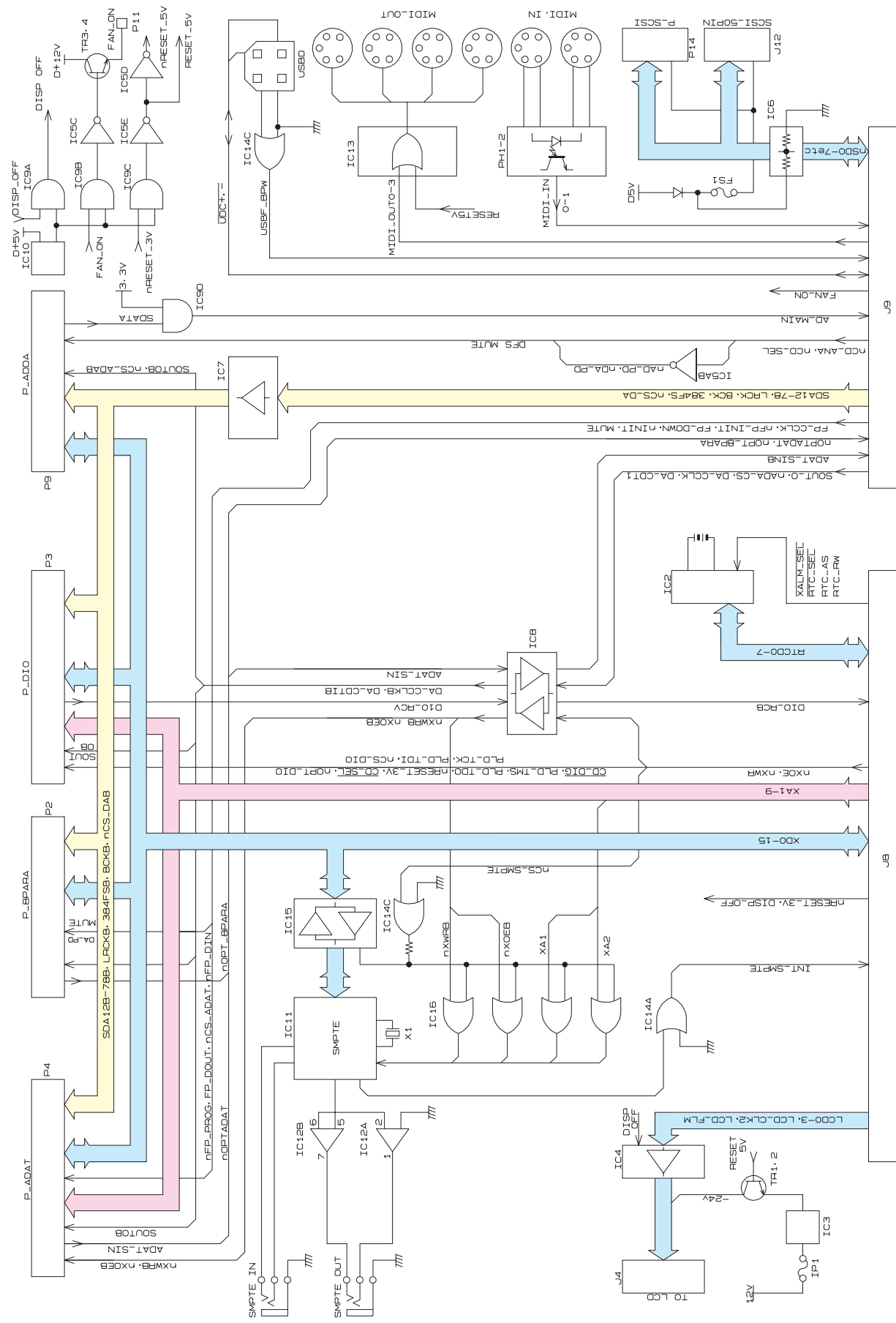
AKAI professional M.I. Corp.

1-3, Hiranuma 1-Chome, Nishi-Ku, Yokohama, Japan

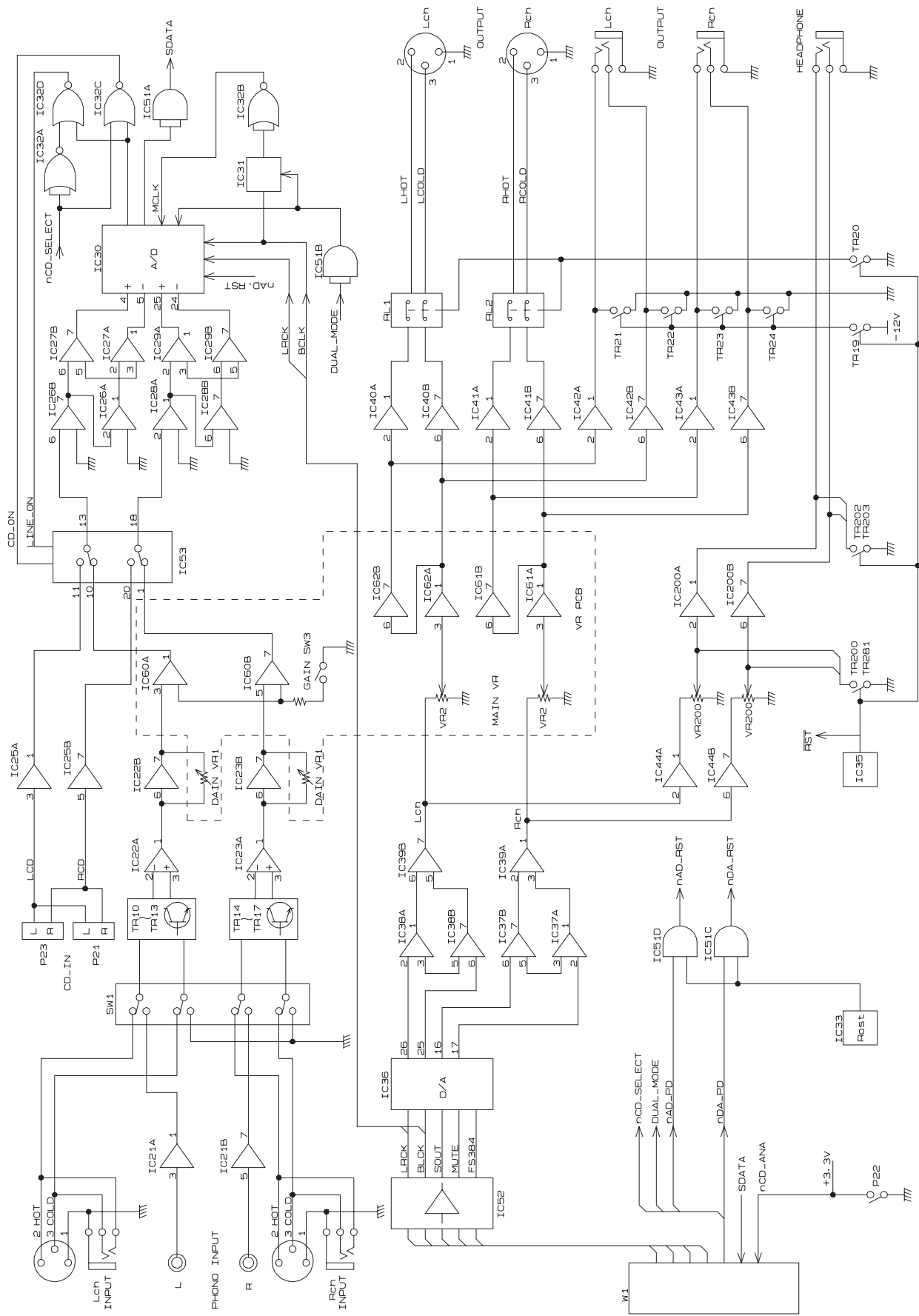
SERVICE SECT. PHONE : +81-45-412-2373 FAX : +81-45-412-2372



MPC4000
OPERATION
BLOCK DIAGRAM



MPC4000
 PC IO
 BLOCK DIAGRAM

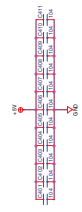
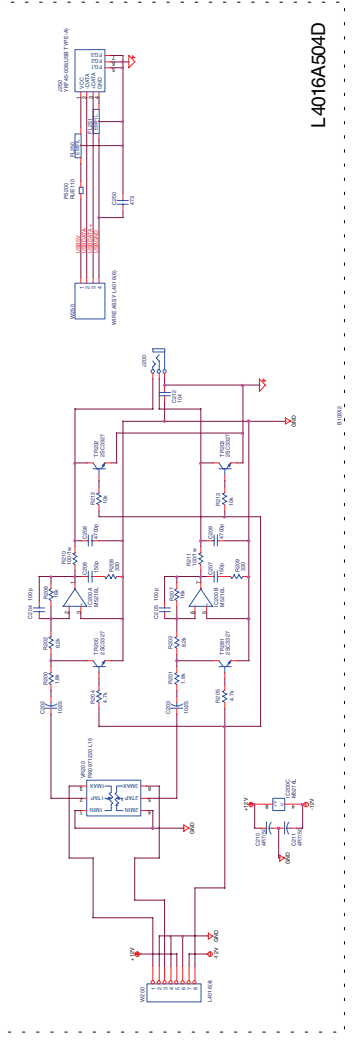
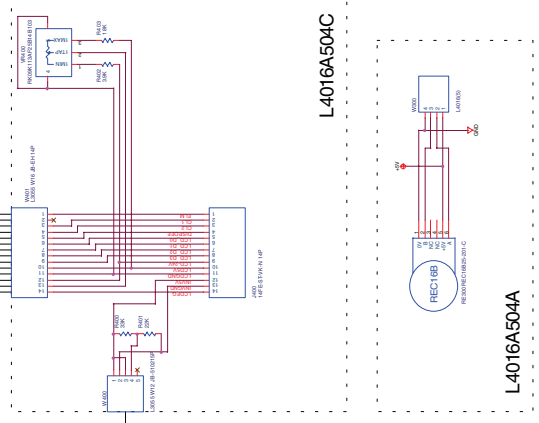
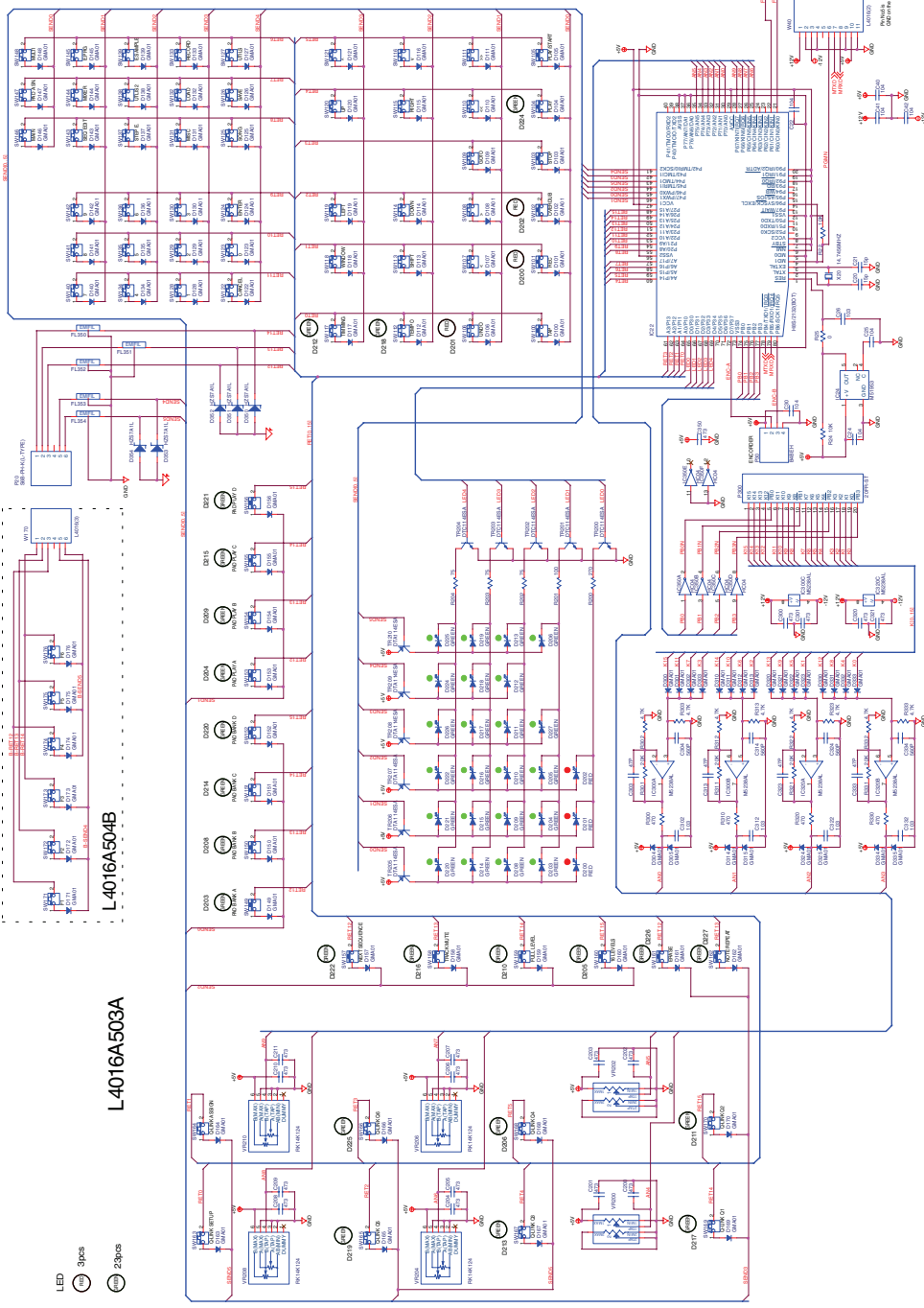


MPC4000
AD DA
BLOCK DIAGRAM

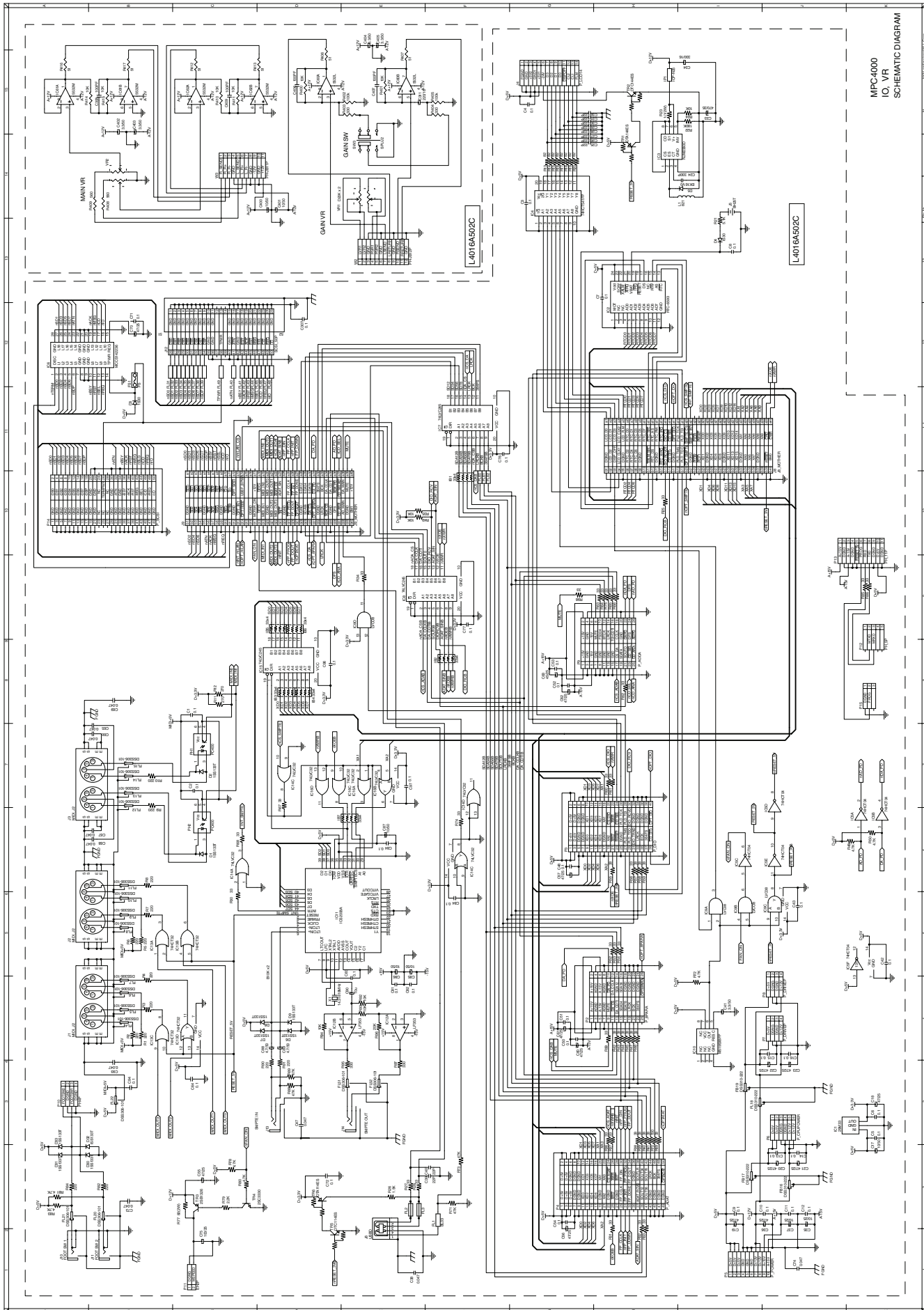
LED
 3PCS
 23PCS

L4016A503A

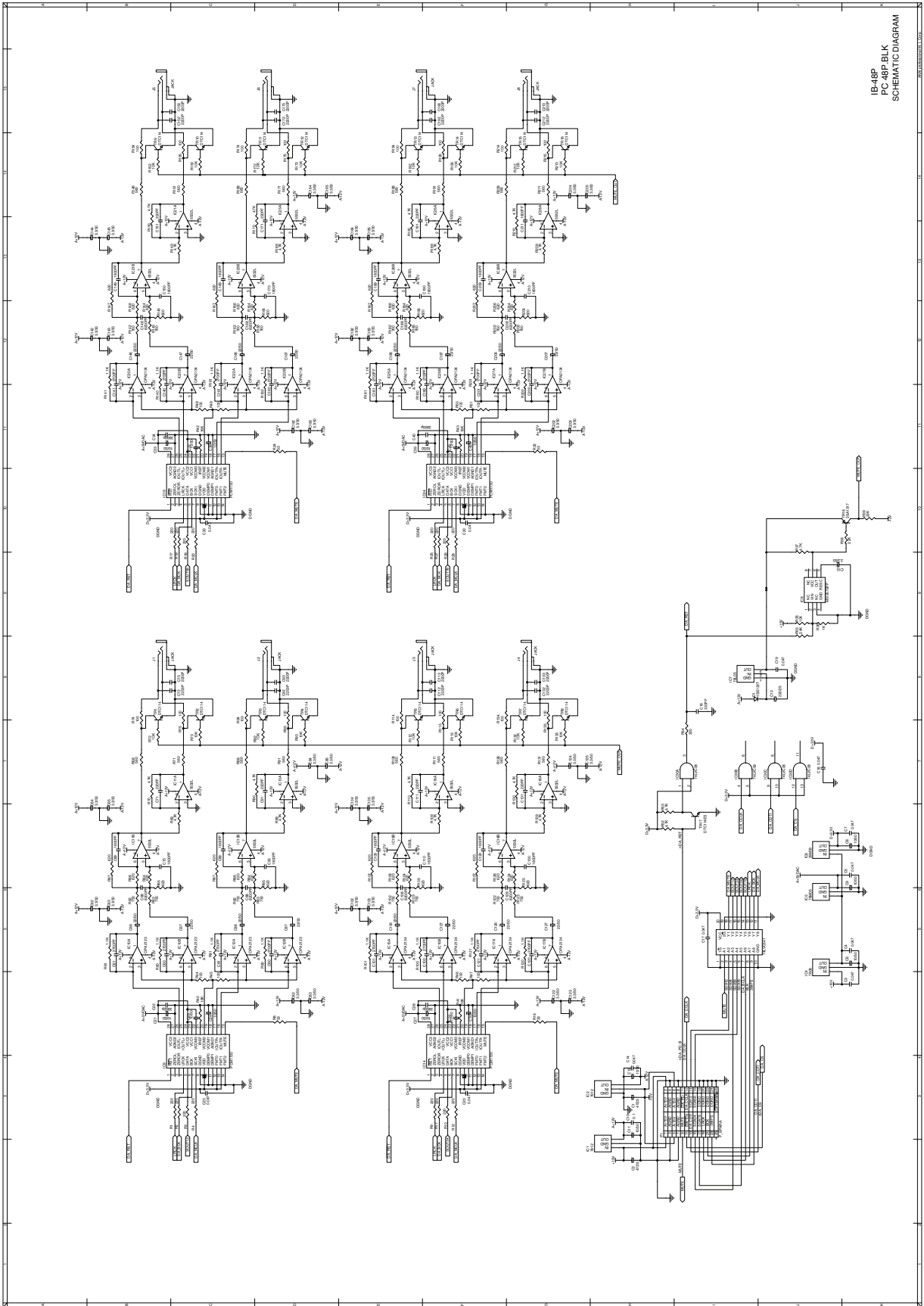
L4016A504B



MPC4000
 PC OPERATION & PC(#)
 OTHERS---ABC/D
 SCHEMATIC DIAGRAM



MPC4000
IO VPR
SCHEMATIC DIAGRAM

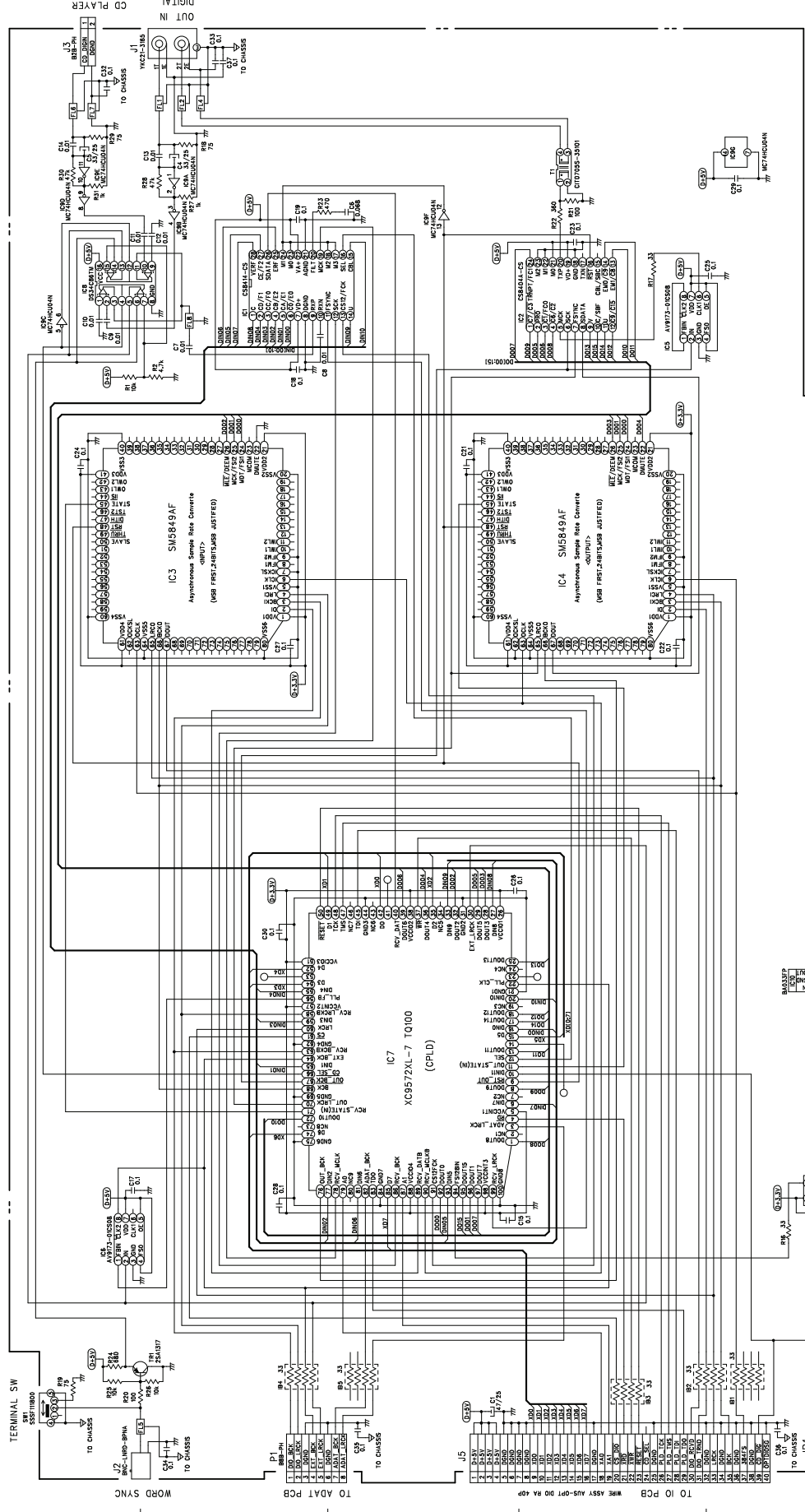


IB-4BP
C-4BP-BLK
SCHEMATIC DIAGRAM

REV. 1.0

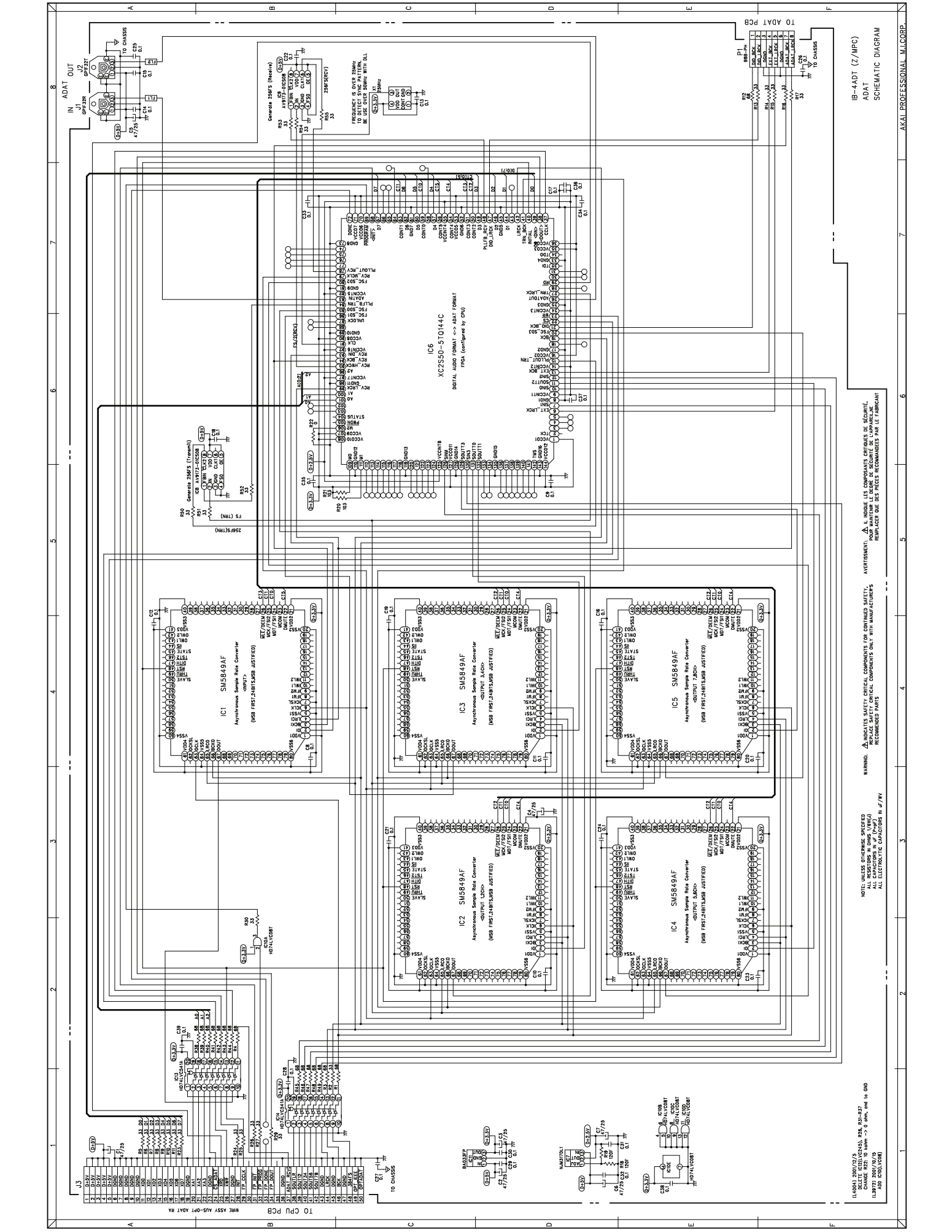
HISTORY OF CHANGE

- 2001/10/19
- (1) IC3 22pin -> DQND (Because spec over)
- (2) IC8 inserted. TRI emitter -> IC8 -> IC8.etc. (Because low level was 0.8V (near TTL VIL spec limit))
- 2001/11/21
- (1) IC1 17,18,23,24pin <- INVERTED RESET-OUT
- (2) FL6 inserted. IC8 3,12pin -> FL6 -> C7



NOTE: UNLESS OTHERWISE SPECIFIED
ALL CAPACITORS IN P/F/W
ALL ELECTROLYTIC CAPACITORS IN P/F/W

Z8/MPC-24 OPTION
DIO
SCHEMATIC DIAGRAM

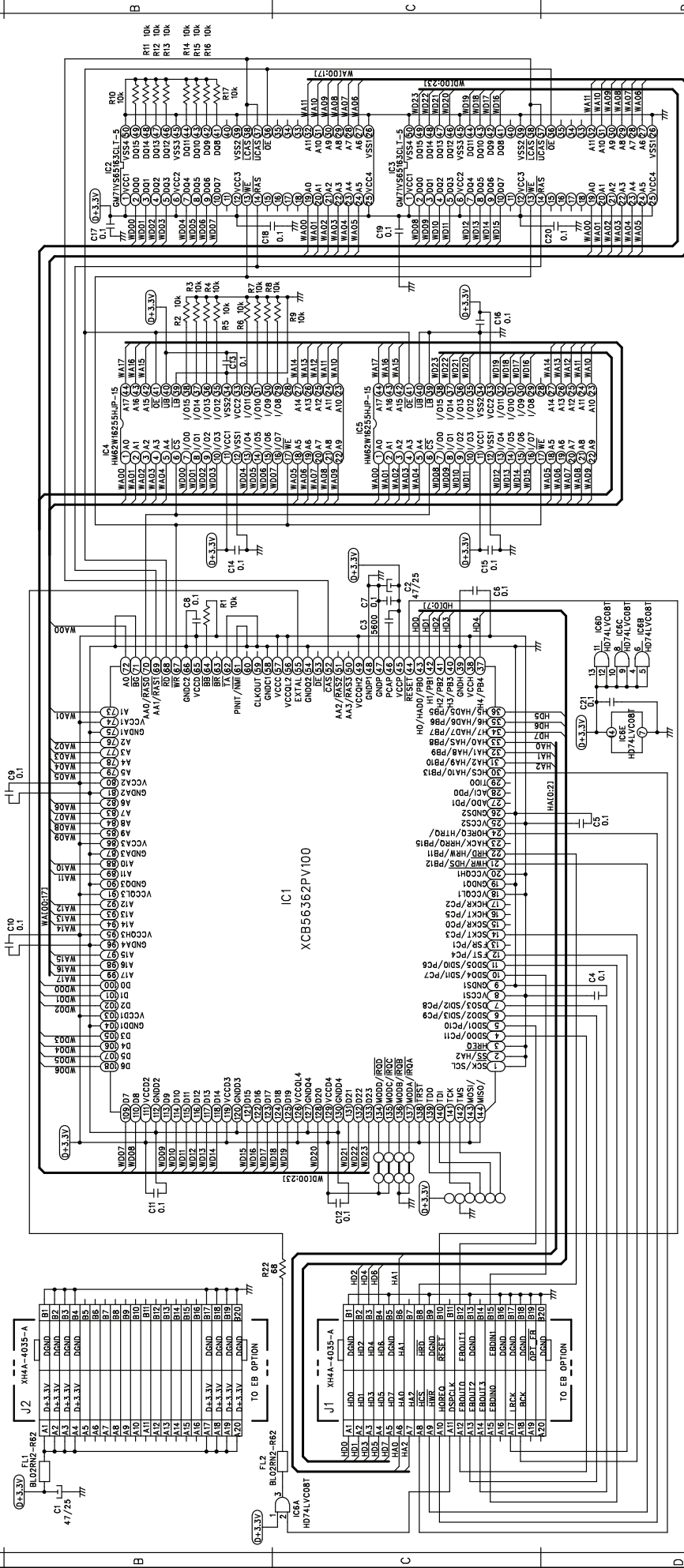


NOTE: UNLESS OTHERWISE SPECIFIED
RESISTOR VALUES ARE IN OHMS
ALL CAPACITORS IN μ F (P-9)
ALL ELECTRIC CONNECTIONS IN μ V (V)

WARNING: Δ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY.
REPLACE ONLY WITH IDENTICAL COMPONENTS ONLY WITH MANUFACTURER'S
RECOMMENDED PARTS.

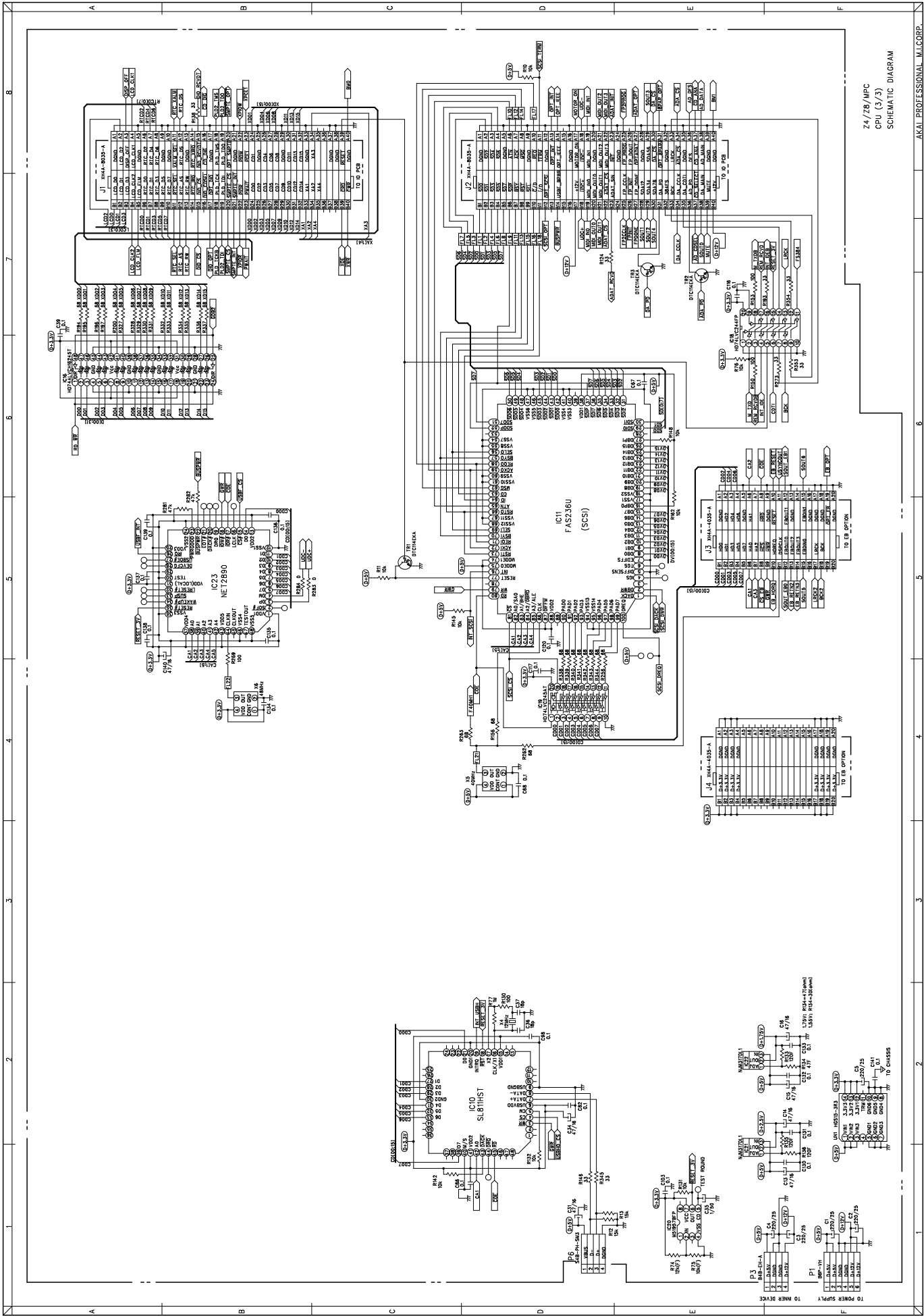
AVERTISSEMENT: Δ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ.
REPLACEZ UNiquement LES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

EL-0041 2001/2/5
IB-4ADT (Z/WPC) 168, 251-327
CHANGÉ 022, 030, 031, 032, 033, 034, 035, 036, 037, 038, 039, 040, 041, 042, 043, 044, 045, 046, 047, 048, 049, 050, 051, 052, 053, 054, 055, 056, 057, 058, 059, 060, 061, 062, 063, 064, 065, 066, 067, 068, 069, 070, 071, 072, 073, 074, 075, 076, 077, 078, 079, 080, 081, 082, 083, 084, 085, 086, 087, 088, 089, 090, 091, 092, 093, 094, 095, 096, 097, 098, 099, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

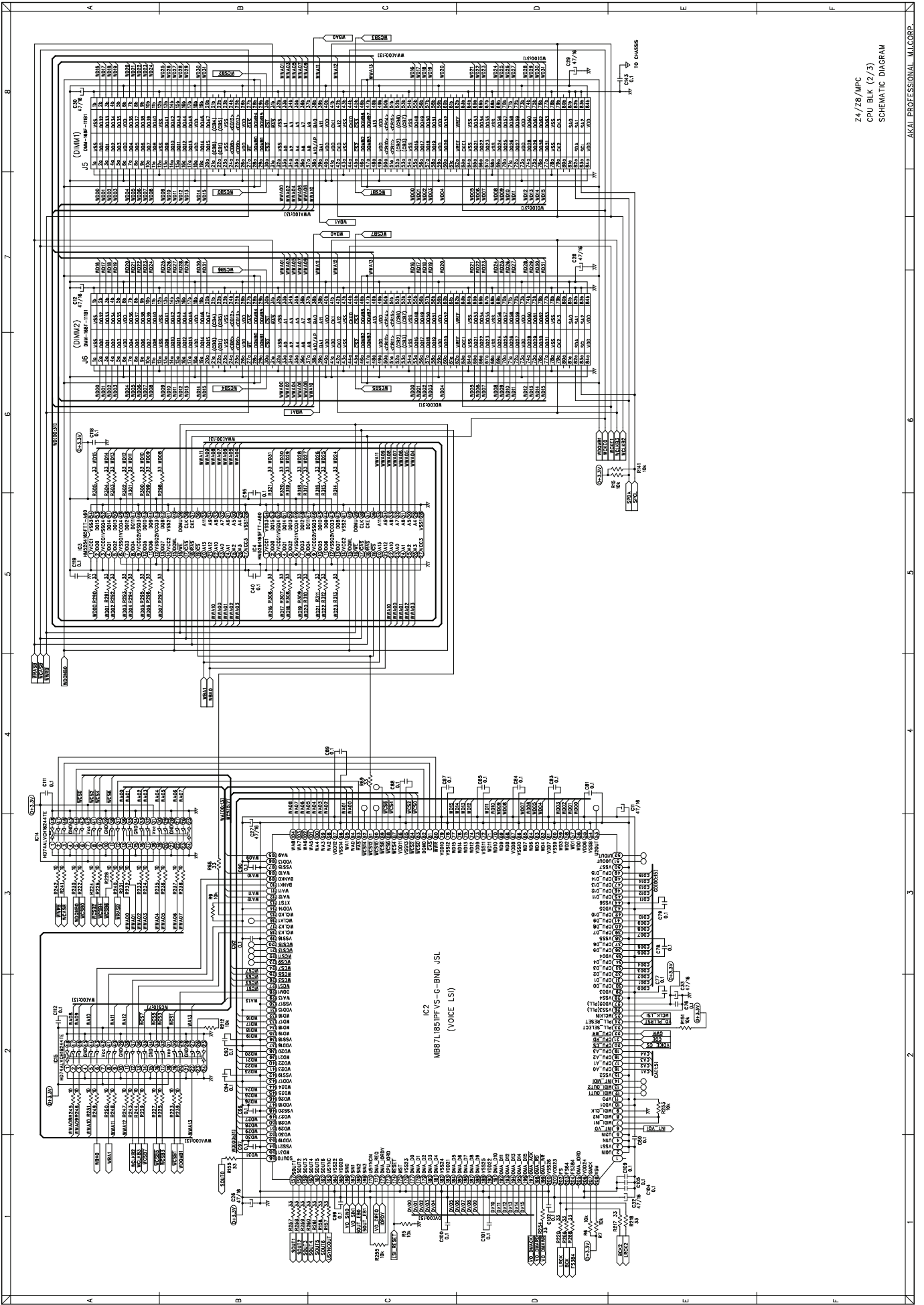


Z4/8 MPC
EFFECT BOARD
SCHEMATIC DIAGRAM

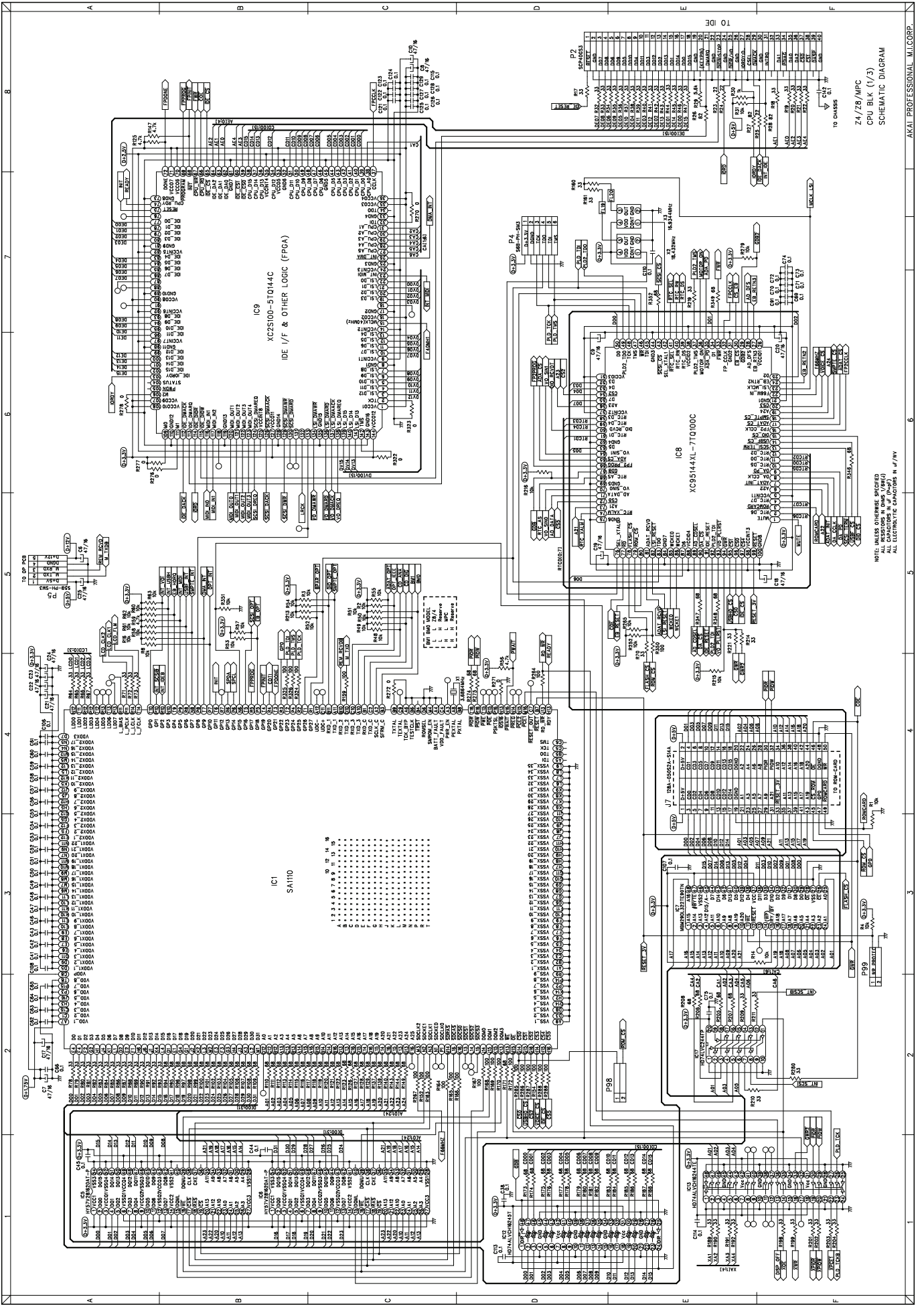
NOTE: UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/8W(J)
ALL CAPACITORS IN UF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN UF/RY



Z4/Z8/MPC
CPU (3/3)
SCHEMATIC DIAGRAM

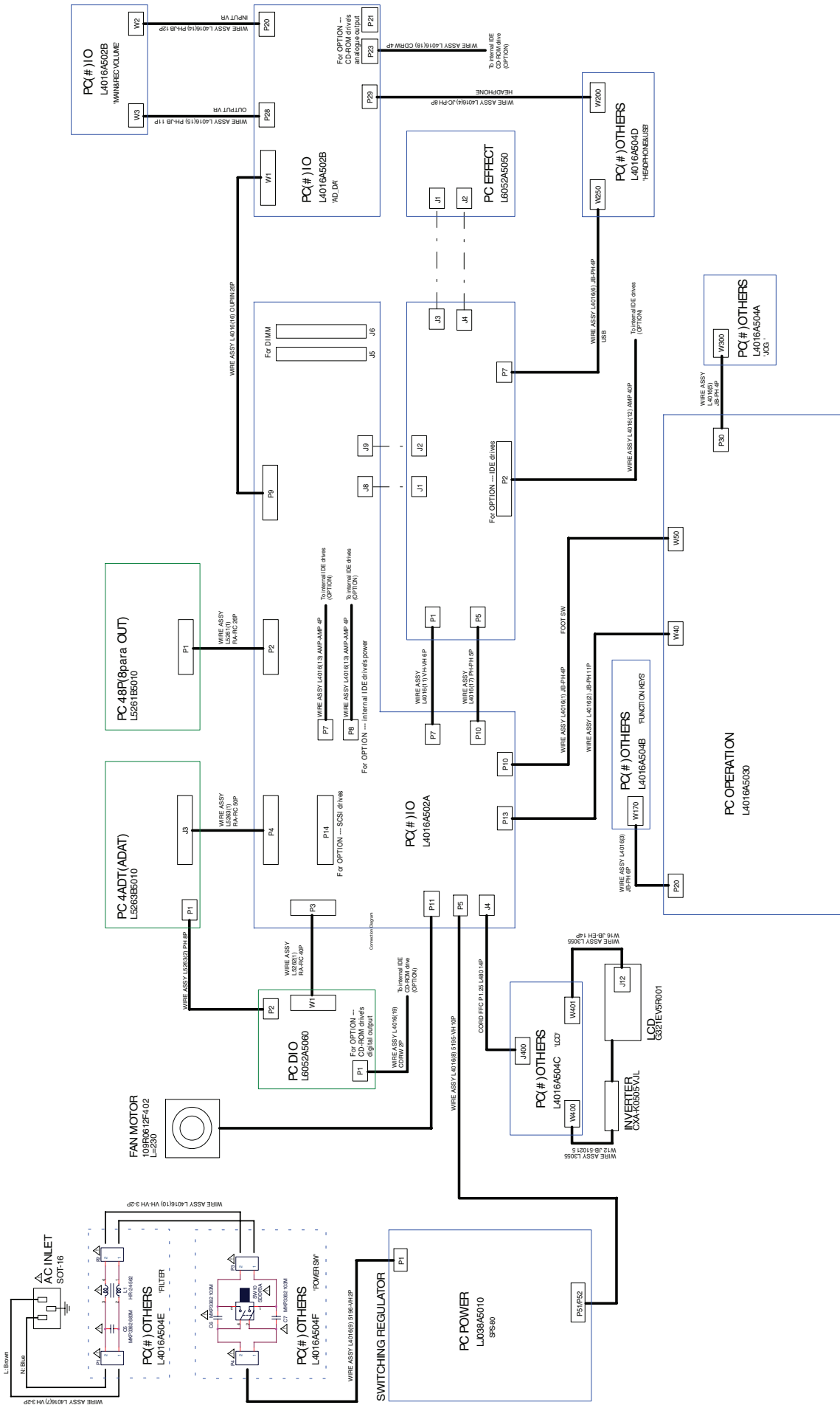


Z4/Z8/MPC
CPU Blk (2/3)
SCHEMATIC DIAGRAM

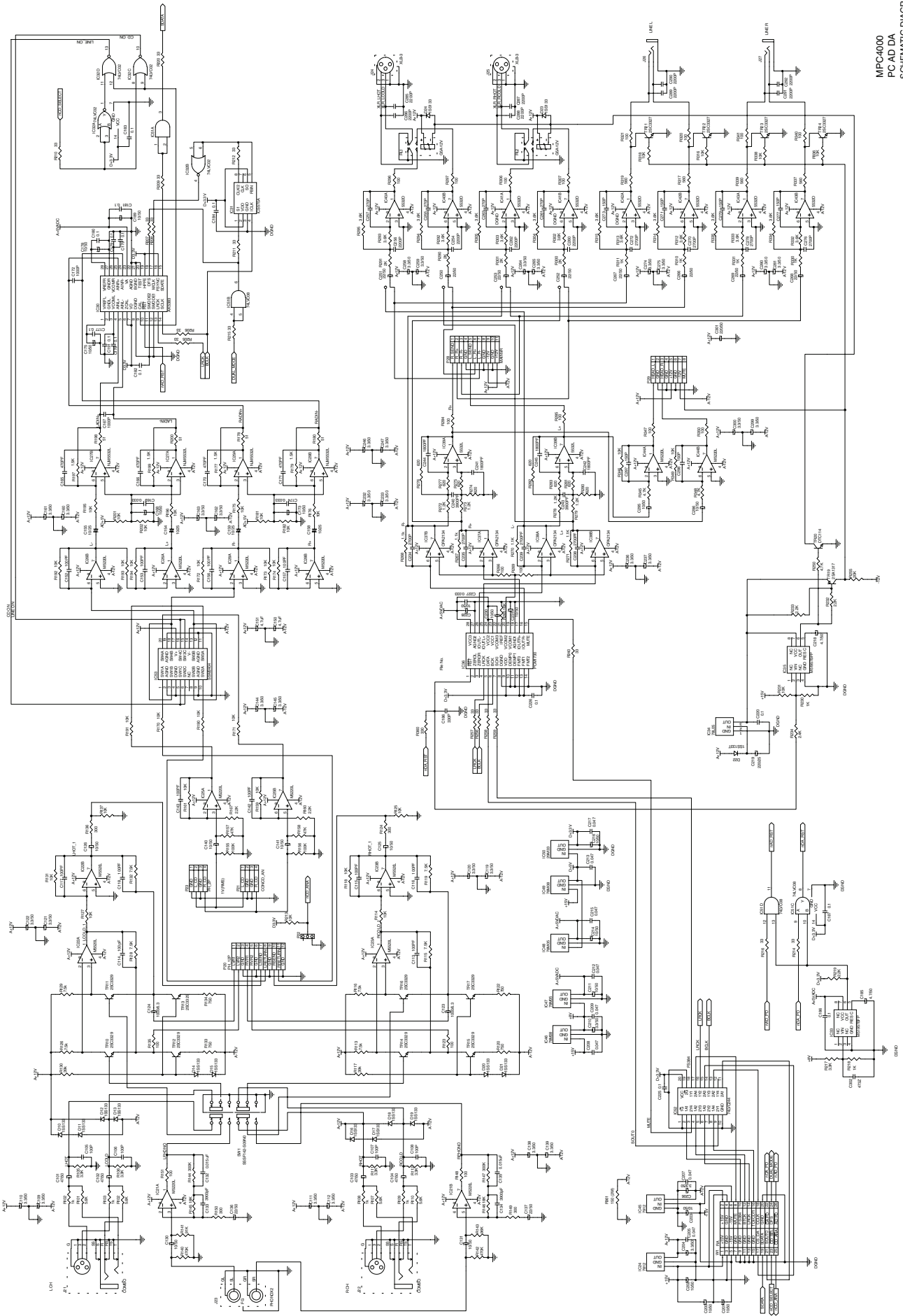


Z4/Z8/MPC
CPU BLK (1/3)
SCHEMATIC DIAGRAM

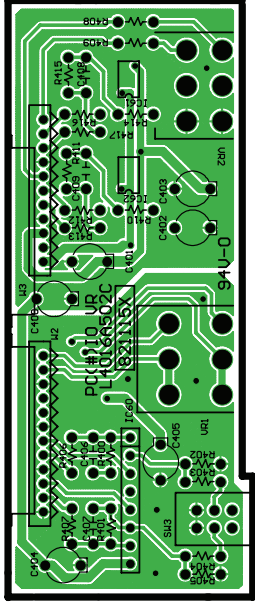
NOTE: UNLESS OTHERWISE SPECIFIED
ALL COMPONENTS ARE IN THE SHOWN POSITION
ALL ELECTRICAL CONNECTIONS ARE AS SHOWN



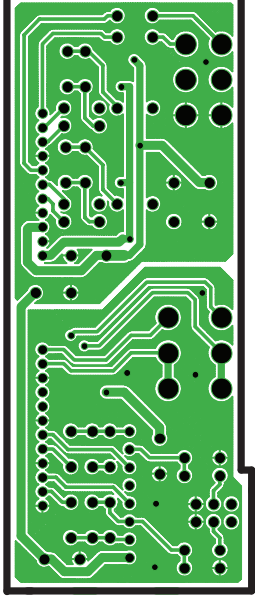
MPC4000
CONNECTION DIAGRAM



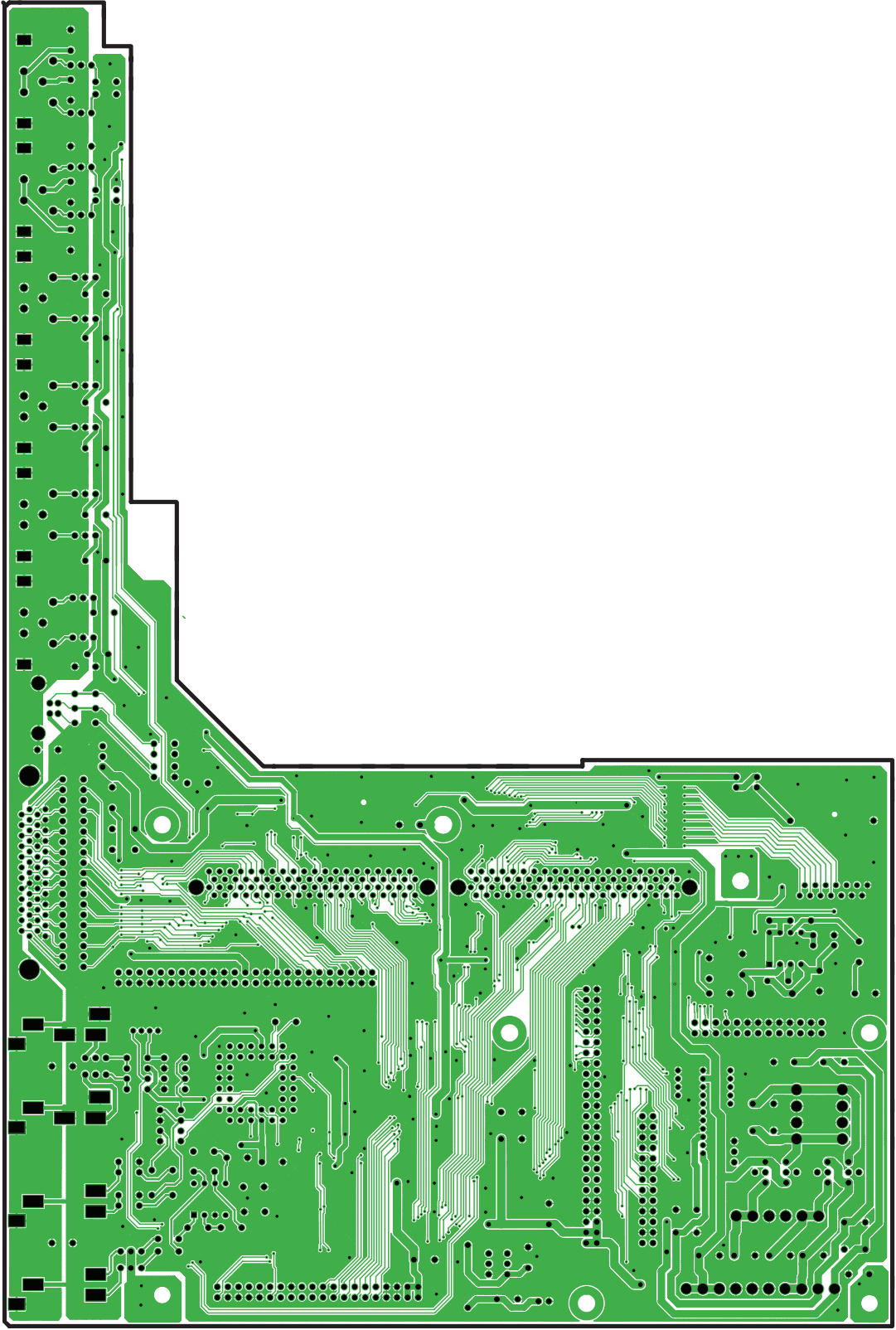
MFC-4000
FC AD DA
SCHEMATIC DIAGRAM



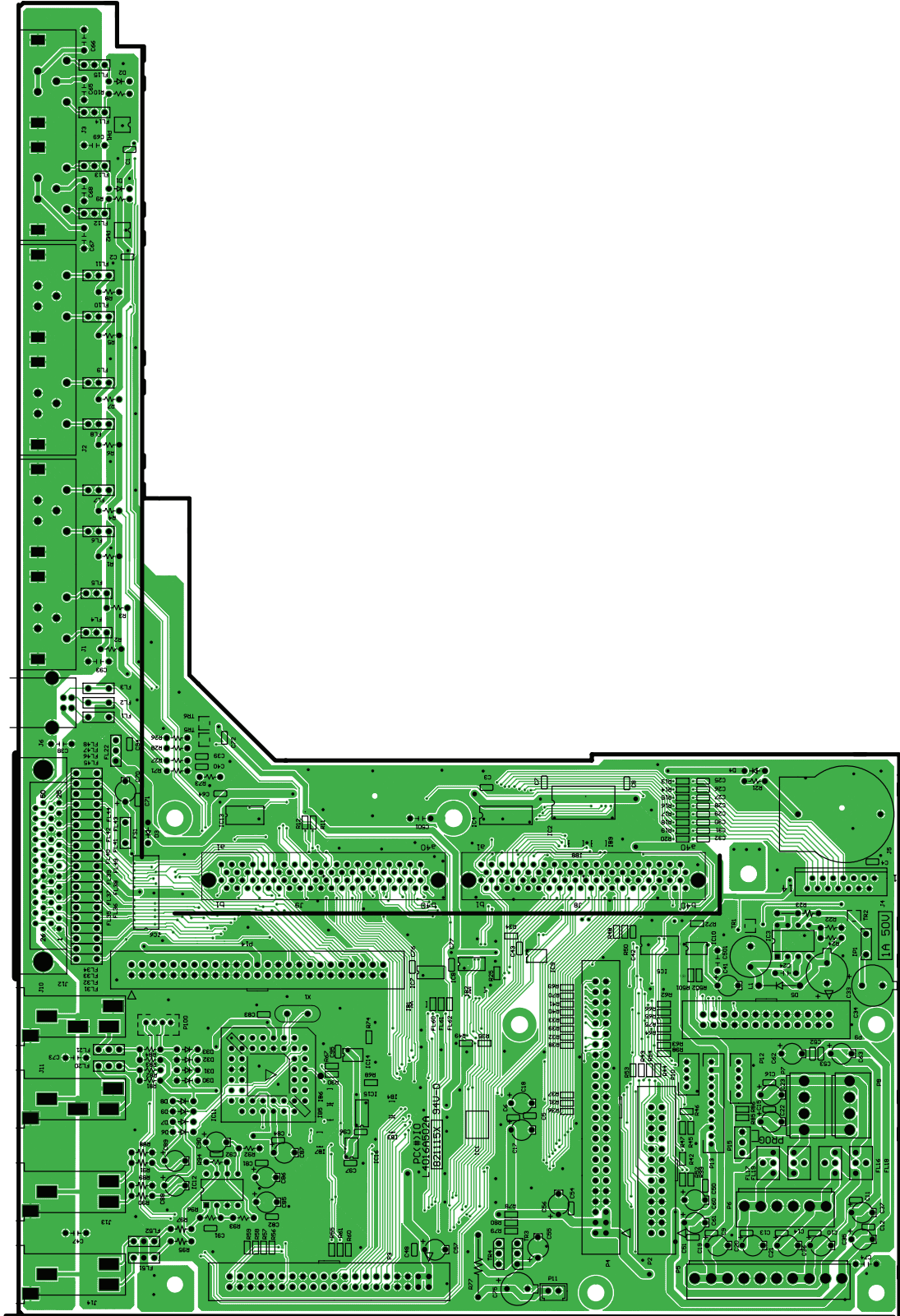
PC IO VR BLK



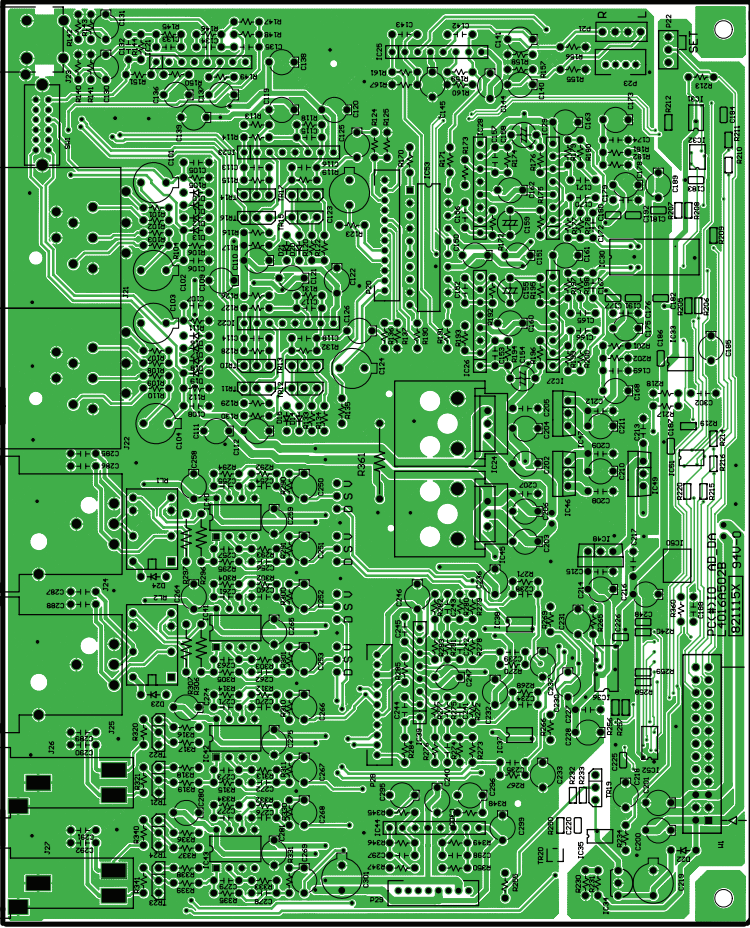
PC IO VR BLK



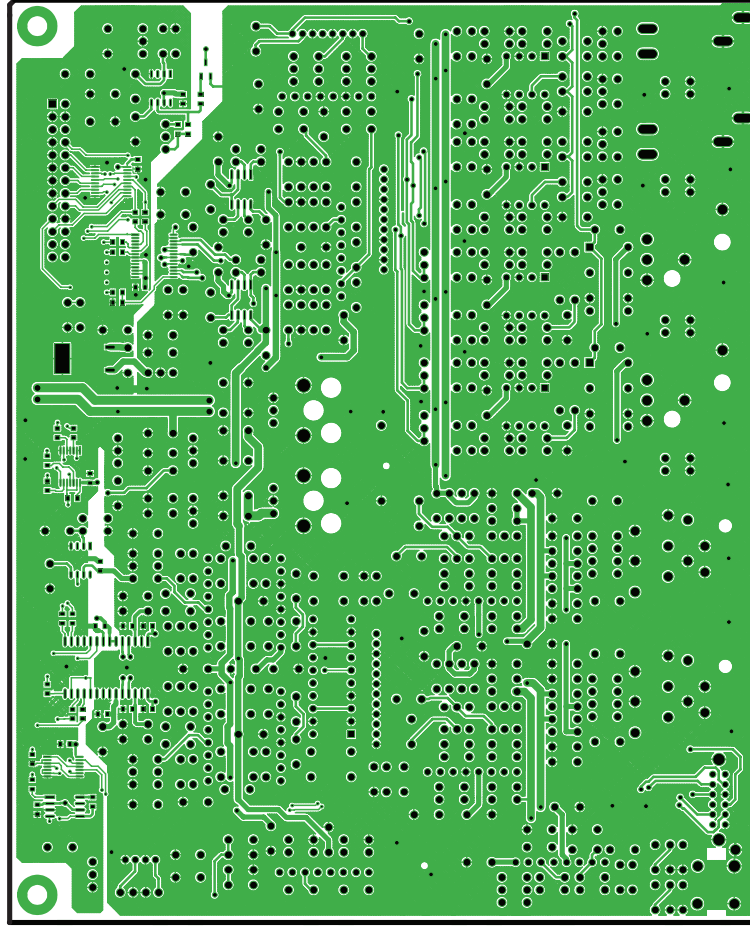
PC IO BLK



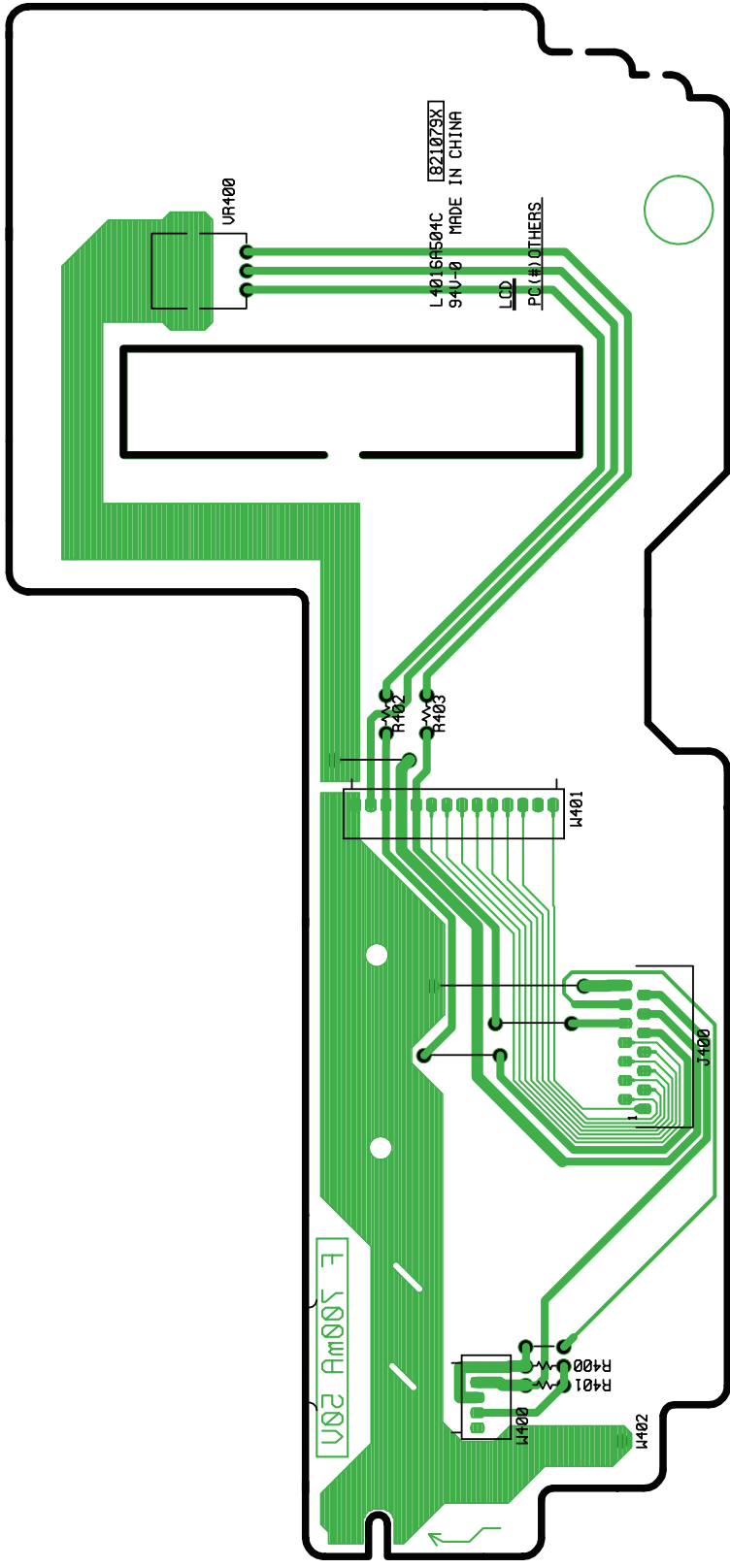
PC IO BLK



PC IO ADDA BLK



PC IO ADDA BLK



PC LCD BLK