

S-MPU64 SERVICE NOTES

64 CHANNEL MIDI PROCESSING UNIT

First Edition
Issued by RJA

SPECIFICATIONS

S-MPU64(Super MPU64) : 64 Channel MIDI Processing Unit

- **Connectors:** MIDI Connectors (IN x 4, OUT x 4)
USB Connector
- **Power Supply:** Bus-powered (Supplied from Computer or USB Hub)
- **Current Draw:** 150 mA (during operation)
under 0.5 mA (Suspend mode)
- **Dimensions:** 8-5/8 (W) x 3-15/16 (D) x 1-3/4 (H) inches
218 (W) x 99 (D) x 43 (H) mm
- **Weight:** 1 lbs 9 oz
0.7 Kg
- **Accessories:** Super MPU64 Driver Disk
(2HD x 1): (01565334)
USB Cable (2 m x 1): (01560478)
Rubber Feet x 4: (01676412)
Owner's Manual (ENGLISH/JAPANESE):
(71233934)

*In the interest of product improvement, the specifications and/or appearance of this unit are subject to change without prior notice.

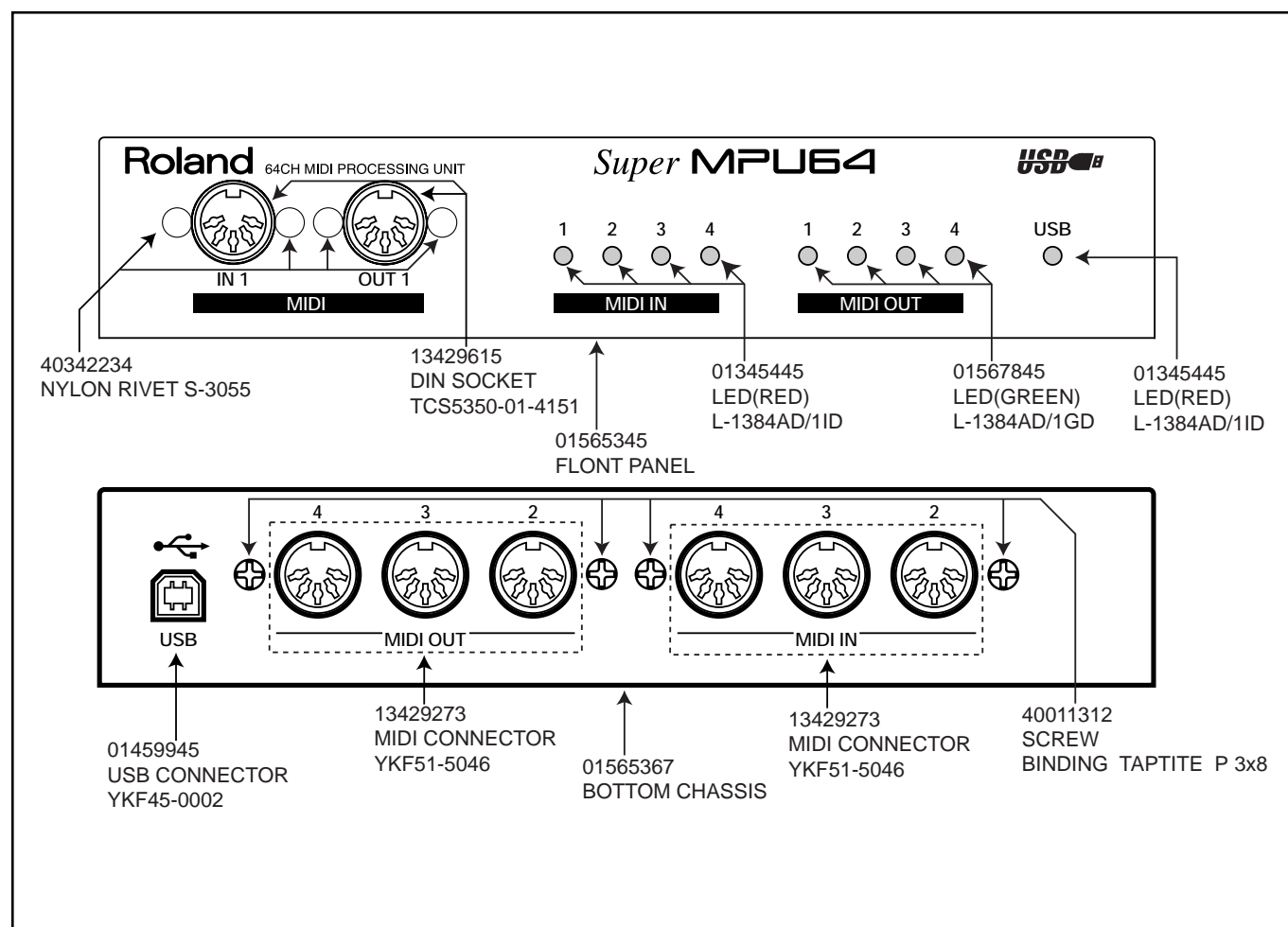
SYSTEM REQUIREMENTS

The minimum system requirements for Super MPU64 and Super MPU64 driver are as follows. Please make sure that each requirement is met.

- **Compatible OS:** Microsoft Windows®98
- *Operation on MS-DOS® and in an MS-DOS® window is not guaranteed.
- **Compatible PC:** IBM PC/AT and compatibles equipped with USB connectors
- **CPU/Clock:** Pentium® Processor / 166 MHz or higher
- **Display Resolution /Colors:** 640 x 480 pixels / 256 color or more
- **Memory(RAM):** 32 MB or more
- **Hard Disk:** 1 MB or more

*Although Roland has tested numerous configurations, and has determined that on average, a computer system similar to that described above will permit normal operation of the Super MPU64, Roland cannot guarantee that a given computer can be used satisfactorily with the Super MPU64 based solely on the fact that it meets the above requirements. This is because there are too many other variables that may influence the processing environment, including differences in motherboard design and the particular combination of other devices involved.

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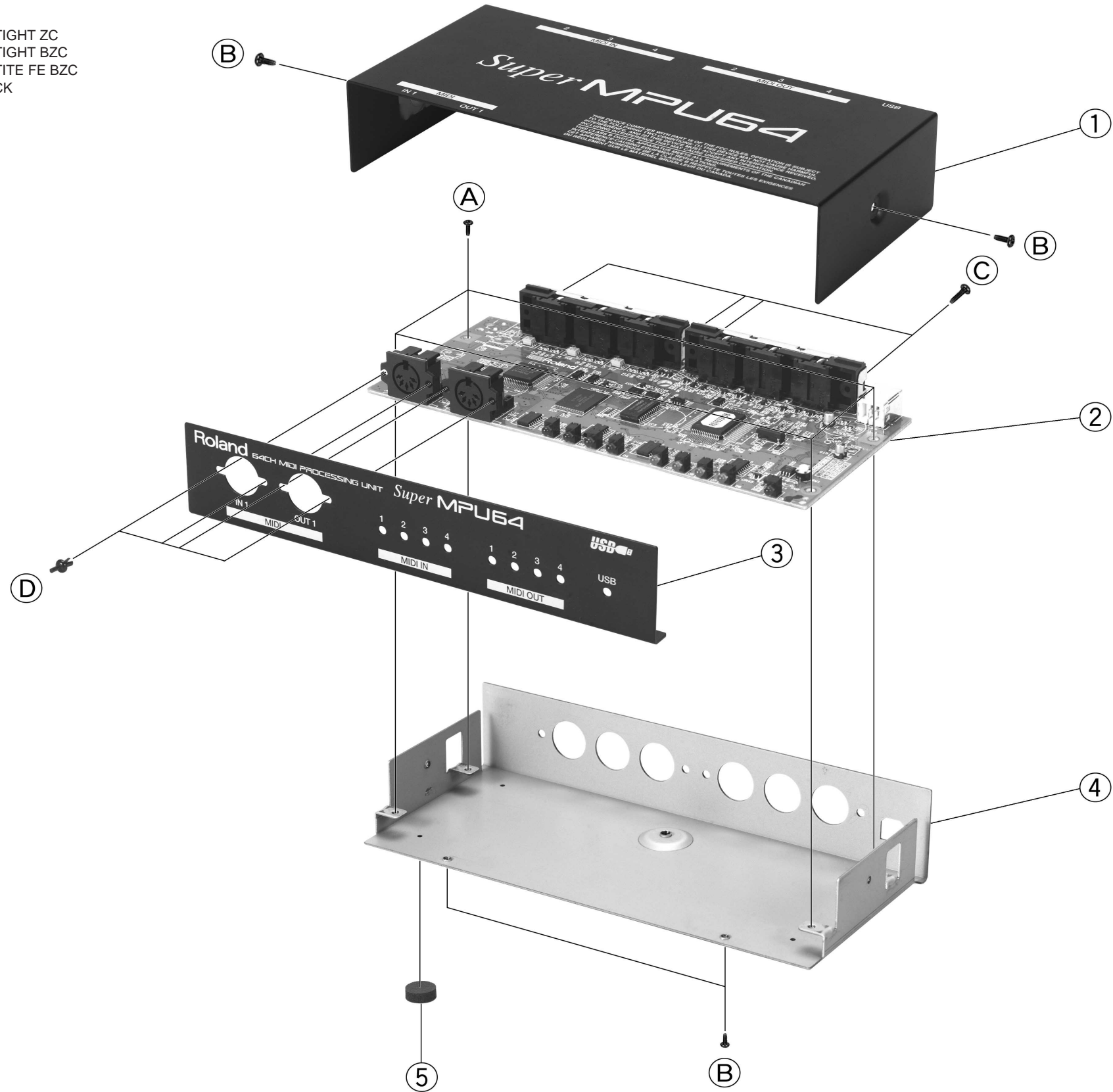
EXPLODED VIEW

[PARTS]

No.	PART No.	Part Name	Description
①	01565356	TOP COVER	
②	71126334	MAIN BOARD ASSY (EXG)	
③	01565345	FRONT PANEL	
④	01565367	BOTTOM CHASSIS	
⑤	01676412	FOOT SET	RUBBER FOOT x4 PCS

[SCREW]

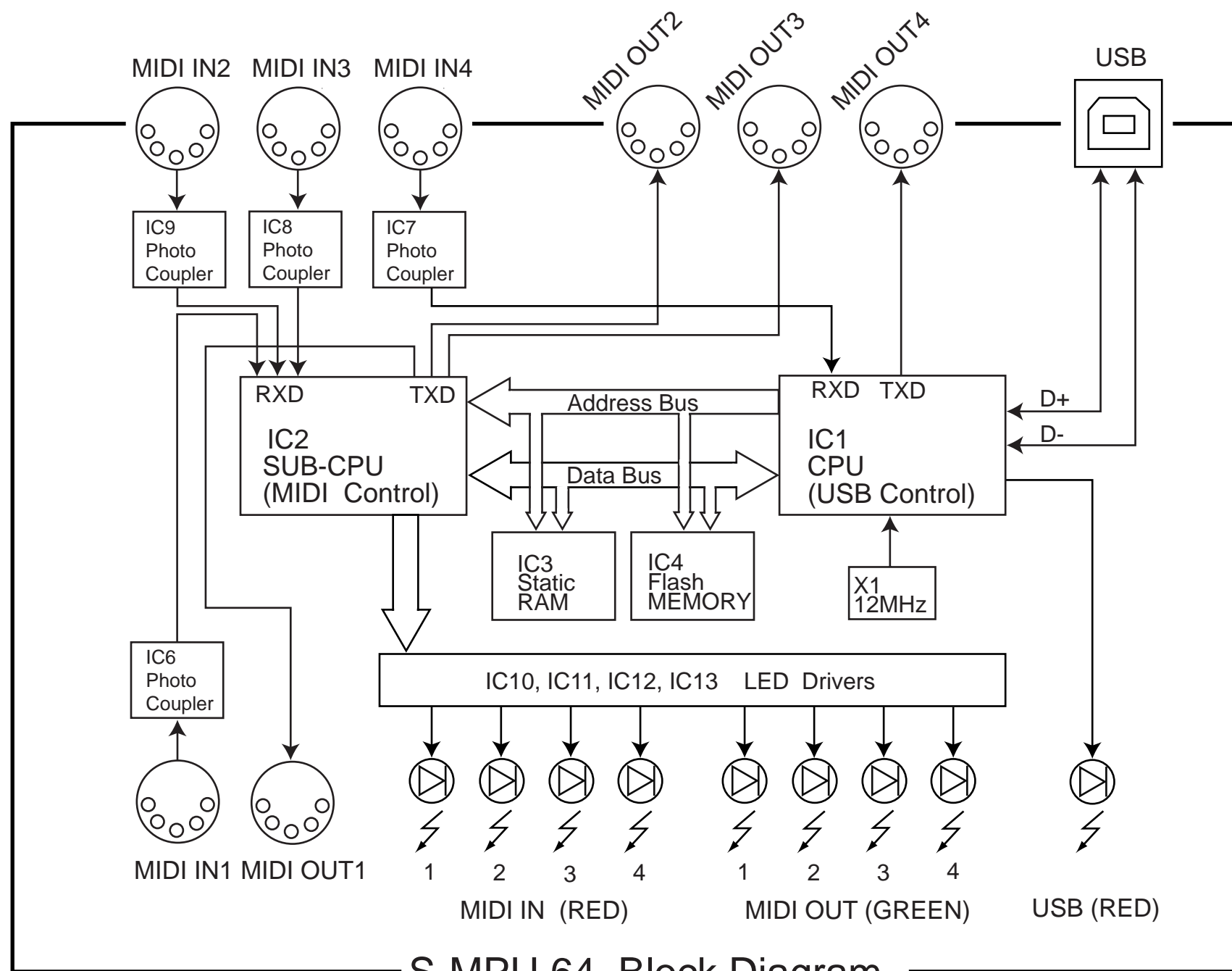
Symbol	Part No.	Part Name	Description
Ⓐ	40011056	SCREW 3x6	BINDING B-TIGHT ZC
Ⓑ	40011090	SCREW 3x6	BINDING B-TIGHT BZC
Ⓒ	40011312	SCREW M3x8	BINDING P-TITE FE BZC
Ⓓ	40342234	NYLON RIVET	S-3055 BLACK



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

A BLOCK DIAGRAM

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S-MPU 64 Block Diagram

PARTS LIST

SAFETY PRECAUTIONS:

The parts marked Δ have safety-related characteristics. Use only listed parts for replacement.

CONSIDERATIONS ON PARTS ORDERING

When ordering any parts listed in the parts list, please specify the following items in the order sheet.

	QTY	PART NUMBER	DESCRIPTION	MODEL NUMBER
Ex.	10	22575241	Sharp Key	C-20/50
	15	2247017300	Knob (orange)	DAC-15D

Failure to completely fill the above items with correct number and description will result in delayed or even undelivered replacement.

NOTE: The parts marked # are new (initial parts)

Warning! : There is the possibility that you will burn your hands when you touch Power Supply parts soon after the power supply is turned off.

Note: Consider about the natural environment carefully before through the old lithium battery away when you exchange to the new one.

CASING

#	01565356	TOP COVER
#	01565345	FRONT PANEL

CHASSIS

#	01565367	BOTTOM CHASSIS
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SWITCH

01343478	TACT SWITCH SKQNAE
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JACK, SOCKET

13429273	YKF51-5046	MIDI CONNECTOR
13429615	TCS5350-01-4151	DIN SOCKET
01459945	YKF45-0002	USB CONNECTOR

PWD ASSY

#E	71126334	MAIN BOARD ASSY
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IC

#	01672867	CPU M38881M2-069FP	SUB CPU	IC2
#	01789978	CPU M37640E8FP(DKT01-ES6)	CPU	IC1
	01123289	SRAM SRM2B256SLMX55	SRAM	IC3
	01341167	LH28F400SUT-NF60	FLASH MEMORY	IC4
	15249116T0	TC7W00F(TE12L)	CMOS	IC14,17
	00127490	TC7W08F(TE12L)	CMOS	IC23
	00232634	TC7W74F(TE12L)	CMOS	IC21
	15249121	TC7W04F(TE12L)	CMOS	IC20
#	15259730T0	TC74HC123AF(EL)	CMOS	IC10,11,12,13
	15259884	TC7S08F(TE85L)	CMOS	IC24
	15259885	TC7S32F(TE85L)	CMOS	IC22
#	01675023	TC74VHC139FT(EL)	CMOS	IC16
#	01675034	TC74VHC138FT(EL)	CMOS	IC15
#	01675012	M62008FP-600	RESET IC	IC5
	15289125	PC-410KT 178	PHOTO CUPLR	IC6,7,8,9

TRANSISTOR

15309101	2SA1037KR T146	TRANSISTOR	Q10,11,12,13
15319101	2SC2412KR T146	TRANSISTOR	Q14,15,16,17
15329503	DTA124EK T146	TRANSISTOR	Q2,4,6,8,9
15329516	DTC114EKT146	TRANSISTOR	Q1,3,5,7

DIODE

	01121323	DA204U T106	ARRAY DIODE	DA1,2,3,4
	01345445	L-1384AD/1ID	LED	D1,2,3,4,9
#	01567845	L-1384AD/1GD	LED	D5,6,7,8

CRYSTAL

#	01340745	MA-406 12MHZ	CRYSTAL
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RESISTOR

	15399373	RPC10T 101 J	MTL.FILM RESISTOR	R31
	15399381	RPC10T 221 J	MTL.FILM RESISTOR	
	15399393	RPC10T 681 J	MTL.FILM RESISTOR	R22,26,35,43
	15399397	RPC10T 102 J	MTL.FILM RESISTOR	
	15399401	RPC10T 152 J	MTL.FILM RESISTOR	R13
	15399421	RPC10T 103 J	MTL.FILM RESISTOR	
	15399469	RPC10T 105 J	MTL.FILM RESISTOR	
	01018212	RR1220Q-330-D	MTL.FILM RESISTOR	R14,15
	15399917	MNR34J5ABJ103	R-ARRAY	RA3
	15399975	RCE9A223JA	R-ARRAY	RA1,5

CAPACITOR

	15359206	ECJ2VF1E104Z	CERAMIC CAPACITOR	
	15359368	ECUV1H330KG	CERAMIC CAPACITOR	C43
	15359384	ECUV1H681KG	CERAMIC CAPACITOR	C11
	15359448	ECJ2VB1H103K	CERAMIC CAPACITOR	
	15359618	ECUV1H120JCN	CERAMIC CAPACITOR	C23,24
	00907689	GRM40F105Z16PT	CERAMIC CAPACITOR	C28,33
	15369152	ECEV1CA100SR	CHEMICAL CAPACITOR	C1
	15369212S0	50CV2R2BS	CHEMICAL CAPACITOR	C15

INDUCTOR, COIL, FILTER

	01340834	EXCML20A390	FERRITE-BEAD
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SCREWS

	40011056	BINDING TAPTITE B 3x6 ZC	SCREW
	40011090	BINDING TAPTITE B 3x6 BZC	SCREW
	40011312	BINDING TAPTITE P 3x8 BZC	SCREW
#	40342234	NYLON RIVET S-3055 BLACK	

PACKING CASE

#	01780167	PACKING CASE
#	01565278	PACKING CASE (JAPANESE)
#	01565289	PAD A
#	01676423	PAD B

ACCESSORIES

#	71233934	OWNER'S MANUAL (ENGLISH/JAPANESE)
#	01565334	DRIVER DISK ENGLISH
#	01565301	DRIVER DISK JAPANESE
	01560478	CORD USB YAF11-0684 2M
	01676412	FOOT SET (4P)

TEST MODE

*Tools required

- A personal computer having environment in which S-MPU64 can operate (for further information, refer to the Specification)
- USB cable
- A pair of tweezers (for grounding)
- MIDI cable

1. Entering test mode

- 1.1 Using tweezers, connect the pin 5 of IC1 to ground path (hold the tweezers in this way until test 5).
- 1.2 Connect S-MPU64 to the PC via USB.
- 1.3 The unit is now in the test mode and turns on all 9 LEDs for a moment.

2. Identifying version

The LEDs MID IN (red) and MIDI OUT (green) light for 1-2 seconds to identify the version as described in the Version Indication table shown below.

3. Testing ICs

- 3.1 When all ICs are operating correctly
All LEDs are lit.
- 3.2 Indicating failure IC(s)
A blinking LED indicates that the device shown in the table below is defective and that the test mode is interrupted. The LED remains blinking until power is turned off. Turn off power, replace the IC. Re-enter the test mode by repeating step 1.

Blinking LED	Defective device
USB (red)	CPU (IC2)
MIDI IN3 (red)	SRAM (IC3): erase, write, read
MIDI IN4 (red)	Program transfer from flash memory (IC4) to SRAM (IC3)

4. Testing LEDs

- 4.1 All LEDs turn on and off, from USB to MIDI IN1, one by one at a time.
- 4.2 All LEDs light.

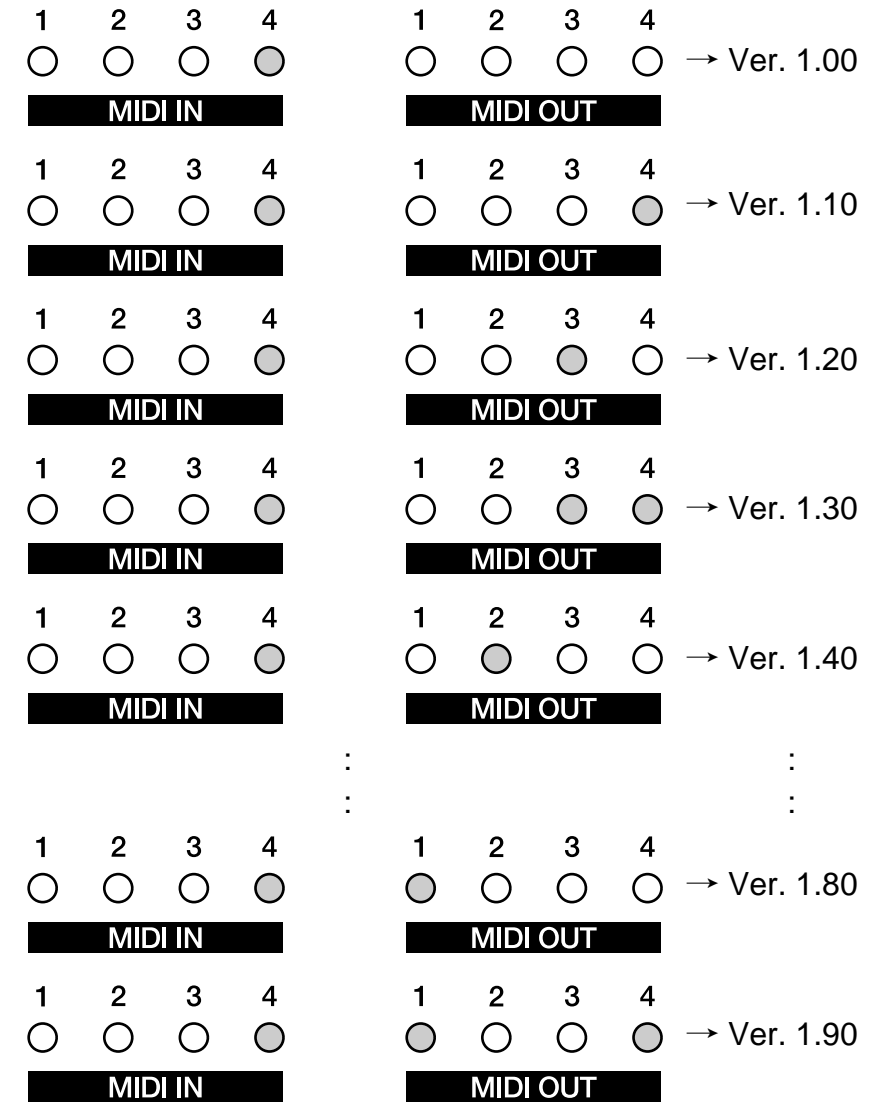
5. Testing MIDI ports

- 5.1 Remove the tweezers to disconnect pin 5 of IC1 from ground reference.
- 5.2 Connect MIDI INs 1-4 to MIDI OUTs 1-4 in this order, one connection at a time, through a MIDI cable. Corresponding MIDI IN LED should light.

VERSION TABLE

MIDI IN and MIDI OUT LEDs (lighting) express the version in a binary number.

● : on, ○ : off

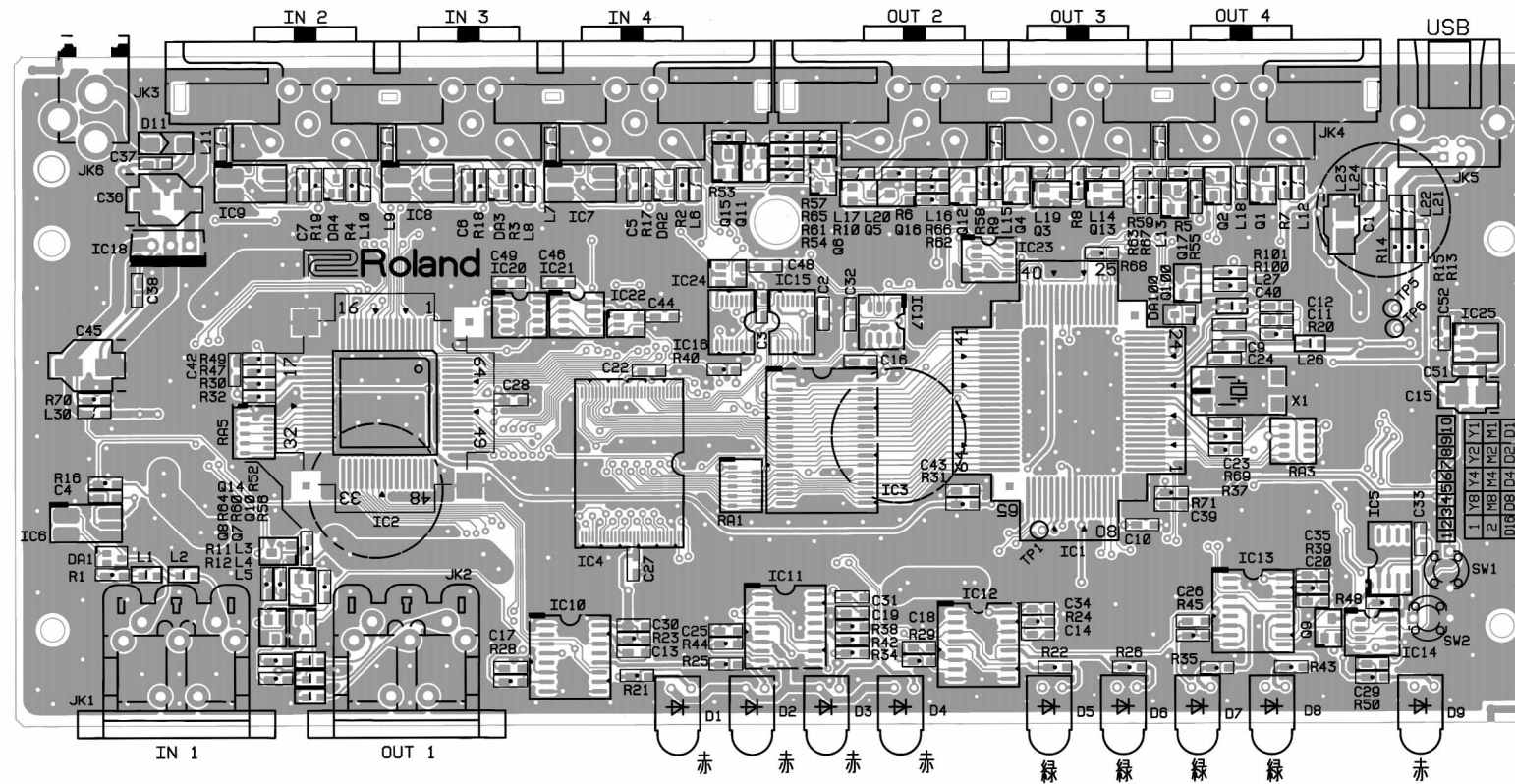


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

A CIRCUIT BOARD

B MAIN BOARD ASSY (71126334)

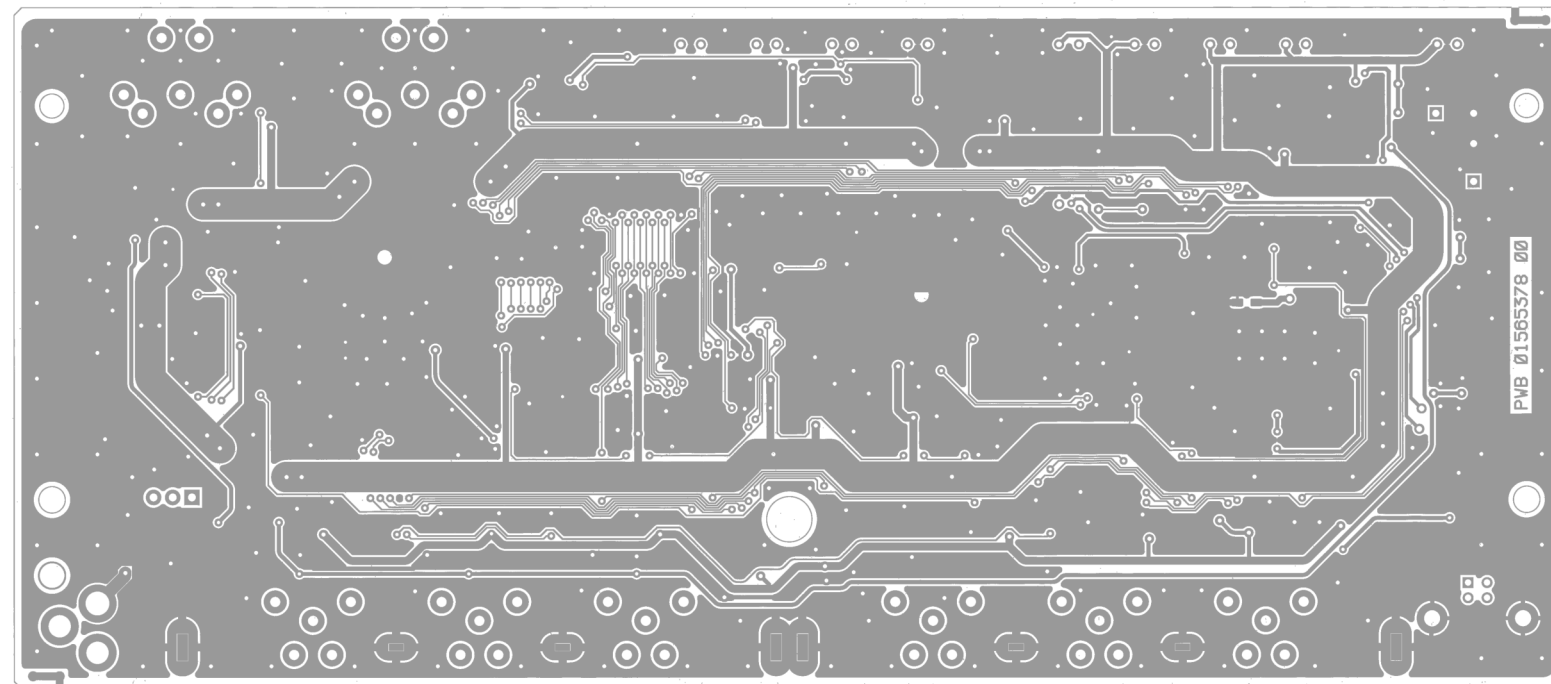
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NOTE: There are no following parts in MAIN BOARD ASSY from Serial No. ZL62900.

CAPACITOR	Q10-Q17
RESISTOR	R56-R67

View from component side.



View from foil side.

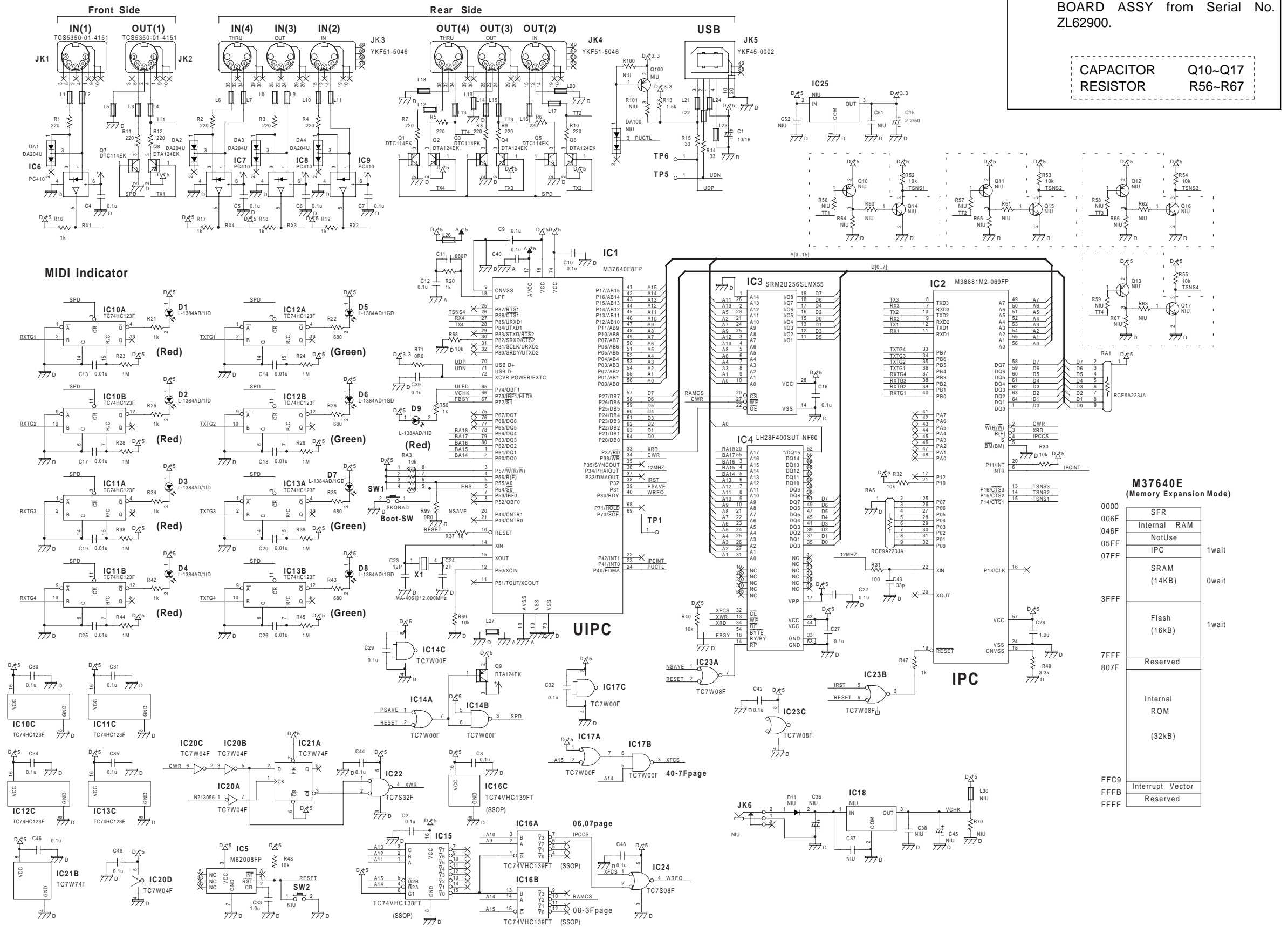
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

A **CIRCUIT DIAGRAM**

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NOTE: There are no following parts in MAIN BOARD ASSY from Serial No. ZL62900.

CAPACITOR Q10-Q17
RESISTOR R56-R67



M37640E (Memory Expansion Mode)

0000	SFR	
006F	Internal RAM	
046F	NotUse	
05FF	IPC	1wait
07FF	SRAM (14KB)	0wait
3FFF	Flash (16kB)	1wait
7FFF	Reserved	
807F	Internal ROM (32kB)	
FFC9	Interrupt Vector	
FFFB	Reserved	
FFFF	Reserved	