

SHARP SERVICE MANUAL

CODE: 00ZPCA150SM-E



PERSONAL COMPUTER

MODEL PC-A150

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THIS SERVICE MANUAL DESCRIBES ONLY THE DIFFERENCES. FOR THE OTHER POINTS REFER TO THE SERVICE MANUAL (CODE: 00ZPCA100SM-E) OF THE PC-A100.

Parts marked with "△" is important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

Caution about Battery

Caution: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Attention: Il y a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

CHAPTER 1. OUTLINE

1. System Overview

The PC-A150 is a B/5-size subnotebook computer with a Tillamook 266-MHz MMX Pentium processor, 64 MB of memory as standard equipment. Compact in size, yet it has a wide viewable area by using a 11.3-inch SVGA (800 × 600) active-matrix display. Its 17-mm pitch, 2.5-mm stroke keyboard allows easy key operations. With an expansion battery pack installed, the machine operates for up to 8.5 hours continuously.

Major changes in the specifications of the PC-A100 include CPU system clock (from 233MHz to 266MHz), display controller (from NM2097 to NM2160) and HDD storage capacity (from Hitachi 3.2GB to Toshiba 4.3GB).

CHAPTER 2. SPECIFICATIONS

CPU

- Intel MMX Pentium 266MHz processor with 32KB cache memory and math coprocessor.
- Core Voltage : 1.8V, Signal interface : 2.5V, 320pin TCP package

System core logic

- Intel 430TX PCIset
- North bridge (System Controller) : 82439TX (MTXC), Host to PCI bridge, controls L2 ache and system memory. Core Voltage : 3.3V, 324pin BGA package
- South bridge (PCI to ISA/IDE Xcelerator) : 82371EB (PIIX4E), PCI to ISA bridge, controls IDE, USB and Power Management, Includes RTC. 3.3V (5V tolerance), 324pin BGA package

System memory

- Standard 64MB (Can not be extended)
- 4M × 16 bits type EDO DRAM × 8, 3.3V

L2 Cache memory

- Cache memory : 256KB, 32K × 32 bits pipeline burst SRAM × 2. Core Voltage : 3.3V, I/O Voltage : 2.5V, 100pin LQFP package × 2
- TAG RAM : 32K × 8 bits SRAM. Core Voltage : 3.3V, I/O Voltage : 2.5V, 28pin SOJ package

Clock Generator

- Microclock MIC1492-02
- Input 14.31813 MHz, Can be controlled by SM bus i/f
- Core Voltage : 3.3V, Output 3.3V & 2.5V, 28pin SSOP package

Video Controller

- NeoMagic NM2160
- Includes 2MB VRAM, System i/f : PCI, LCD i/f : LVDS
- Resolution and Number of colors

Resolution	Number of Colors
640 × 480	16 256 64K 16M (*1)
800 × 600	256 64K 16M (*1)
1024 × 768 (*2)	256 64K

*1: The number of colors in this mode is made using a dithering algorithm.

*2: Only 800 × 600 dots are displayed on the internal LCD. Move the cursor to show the remainder of the 1024 × 768 dots.

LCD

- Sharp LQ113S1LH01, 11.3" SVGA TFT LCD with 1CCFT back-light
- Resolution : 800 × 600
- Effective viewing area (H × V) : 230.4 × 172.8 mm
- Pixel pitch : 0.288 × 0.288 mm
- Power source : 3.3V, 5V, 12V
- I/F : LVDS

LVDS Controller

- NS DS90C363MTD
- 3.3V, 48pin SSOP package

PCMCIA Controller

- Ricoh RL5C475A rev.0
- 1 slot PCMCIA Controller, Supports 16bit card, Card bus card, ZB port.
- 3.3V, 144pin LQFP package
- Power Switch : Micrel MIC2562A-1BM (3.3V, 5V, 12V, 14pin SOP package)

HDD

- Toshiba 2.5" 4.3GB HDD HDD2134
- 5V i/f, 8.45mm H

BIOS

- ATMEL AT29F040 4Mbits Flash EEPROM
- Includes System, Video, PnP and APM.
- 5V, 32pin PLCC package

Keyboard Controller

- Mitsubishi M38813
- Support 2 PS/2 ports and 1 Touch pad.
- 5V, 64pin TQFP package

Keyboard

- Sejin 81 keys keyboard for US, 82 keys for Europe
- IBM 101/102 keys compatible keyboard
- Supports 2 windows keys
- 17mm pitch, 2.5mm stroke

Touch Pad

- Alps Glide pad
- PS/2 mouse compatible
- 2 click buttons
- Resolution (X × Y) : 290 ± 30 × 255 ± 30 cpi
- Supports IntelliMouse scroll function.
- Automatically disabled when external mouse is connected.

I/O controller

- NS PC97338VJG
- Controls Serial port, Parallel port, IR port and FDD.
- 5V, 100pin TQFP package

RS232C driver/Receiver

- Harris HIS213
- 5V, 28pin TSOP package

FDD

- Mitsubishi 3.5" FDD MF355H
- 5V i/f

Audio Controller

- Crystal CS4237B
- Sound Blaster, Sound Blaster Pro, Windows Sound System compatible
- Full duplex operation
- Controls Modem Chipselect
- 5V, 100pin TQFP package
- ZB port buffer : Crystal CS4331, 5V, 8pin SOP package

Modem Controller (may not be available in some countries)

- Pctel Software Modem PCT388T
- Supports K56Flex.
- 5V, 100pin TQFP package
- CODEC : SGS STLC7546, 5V 44pin TQFP package

Embedded Controller

- Hitachi 1chip micro controller H8
- Controls Power Sequence, Battery Charge, SM bus for Battery Gage.
- 5V, 100pin QFP

DC/DC Controller

- V5S(5V), V3S(3.3V) : Toyota SB3052P, VAB(Battery or AC adapter), 28pin SSOP
- VCPUCORE(1.8V) : Toyota SB3030, VAB(Battery or AC adapter), 16pin SOP
- VPP(12V) : Linear Tech. LT1301, V5S(5V), 8pin SOP

Regulator

- VCPUIO(2.5V) : Micrel MIC2951BU, V3S(3.3V), 5pin
- VMCU(4.7V) : NS LP2951CM, VAB, 8pin SOP
- V3(3.1V) : Trex XC62FP3102M, VMCU, 3pin

Battery Charger

- Linear Tech. LT1511
- 22V, 24pin SOP package

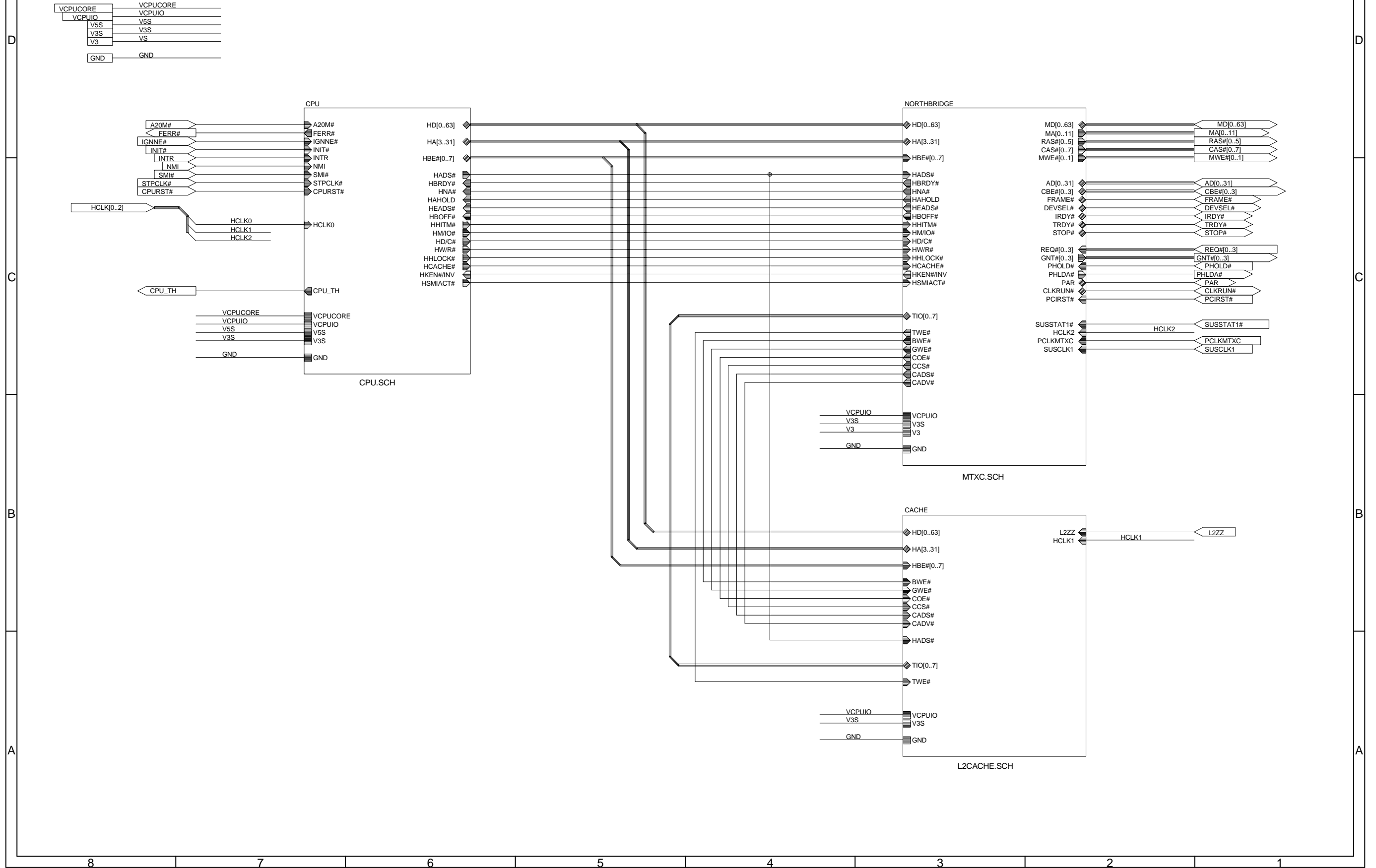
Battery

- Li-ion Battery
Internal : Panasonic 3.7V × 1400mAh × 4cells (4 series)
External : Panasonic 3.7V × 1500mAh × 8cells (4 series, 2 parallel)
- Battery Gauge : Benchmarq BQ2092
- Li-coin battery for CNOS backup : Hitachi Maxell CR2032, 3V 220mAh

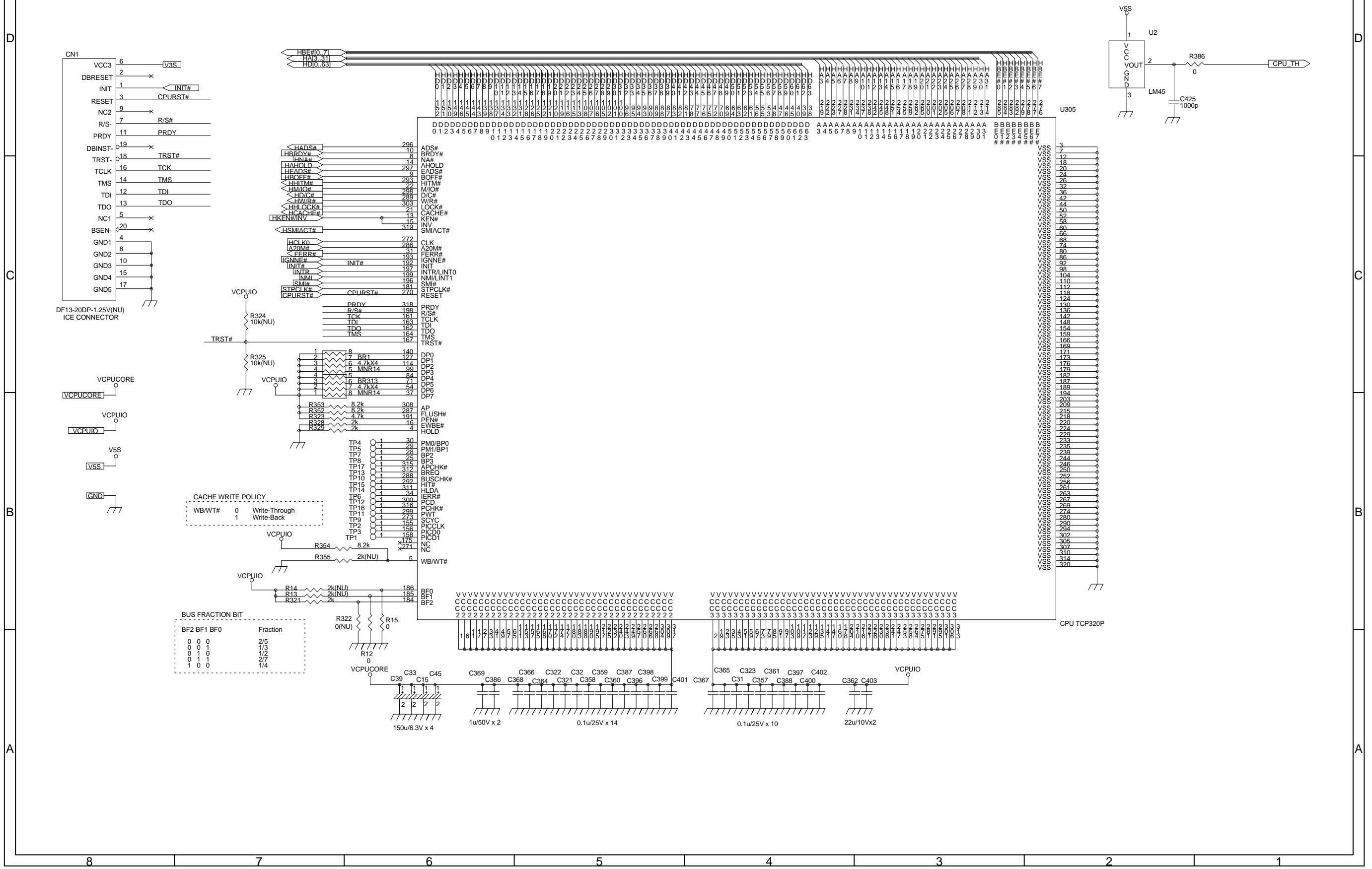
AC adapter

- SAMSUNG 22V 1.8A AC Adapter
- Input Voltage : 100-240VAC, Input Frequency : 50/60Hz

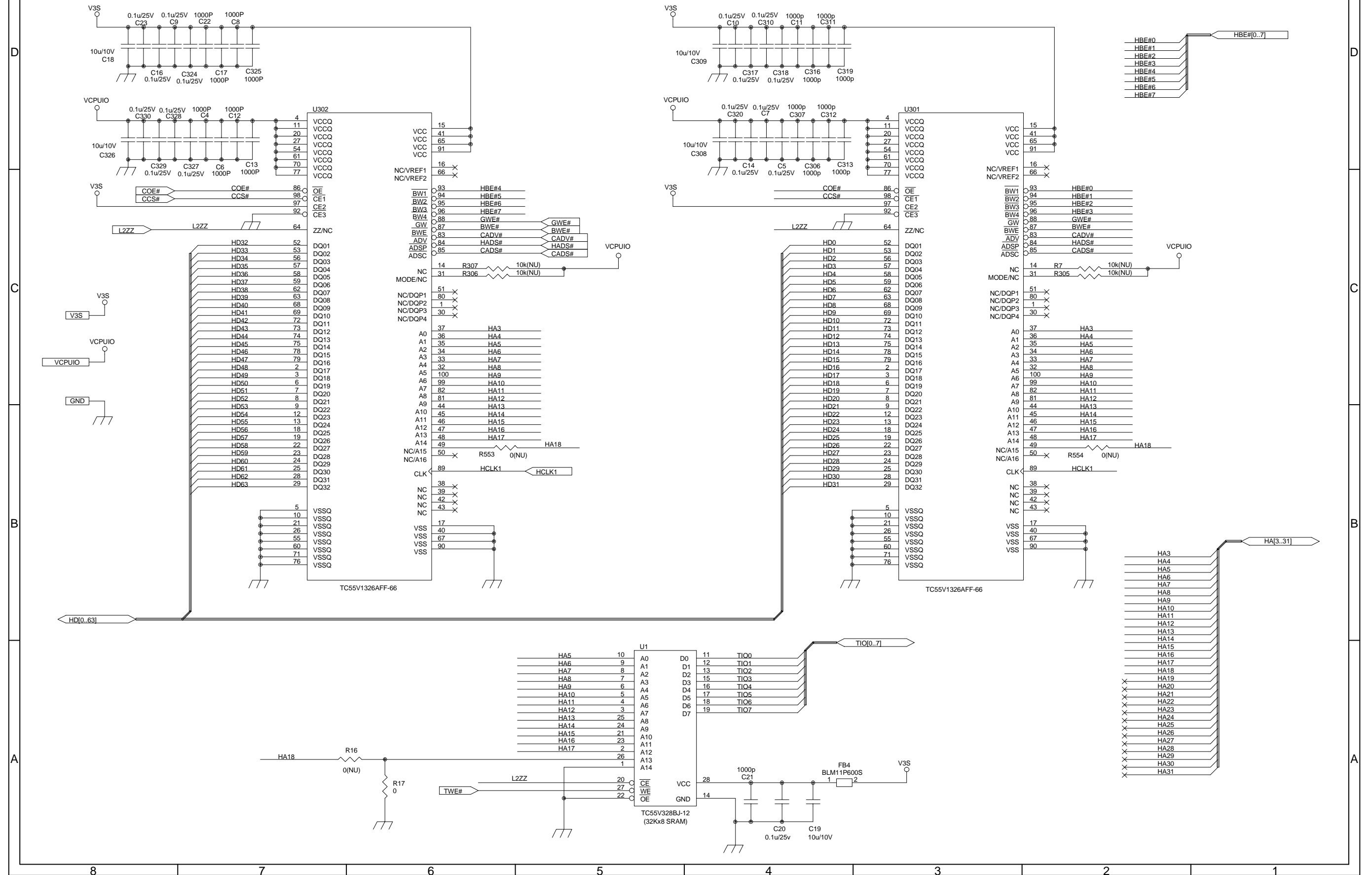
PC-A150U,Y,A,C I/O TO CPU CONNECTOR (REV 1.B)



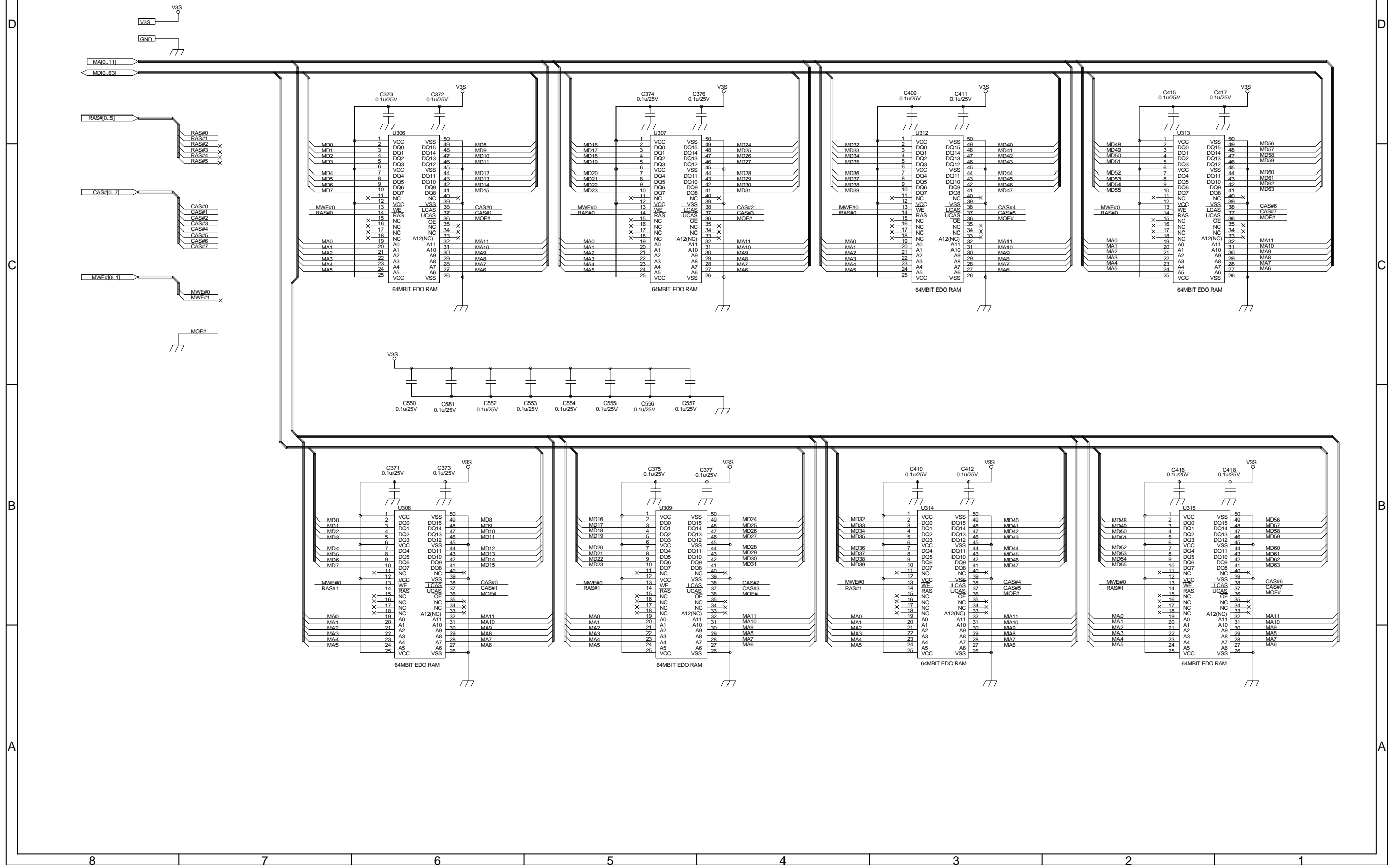
PC-A150U,Y,A,C TILLAMOOK (REV 1.B)



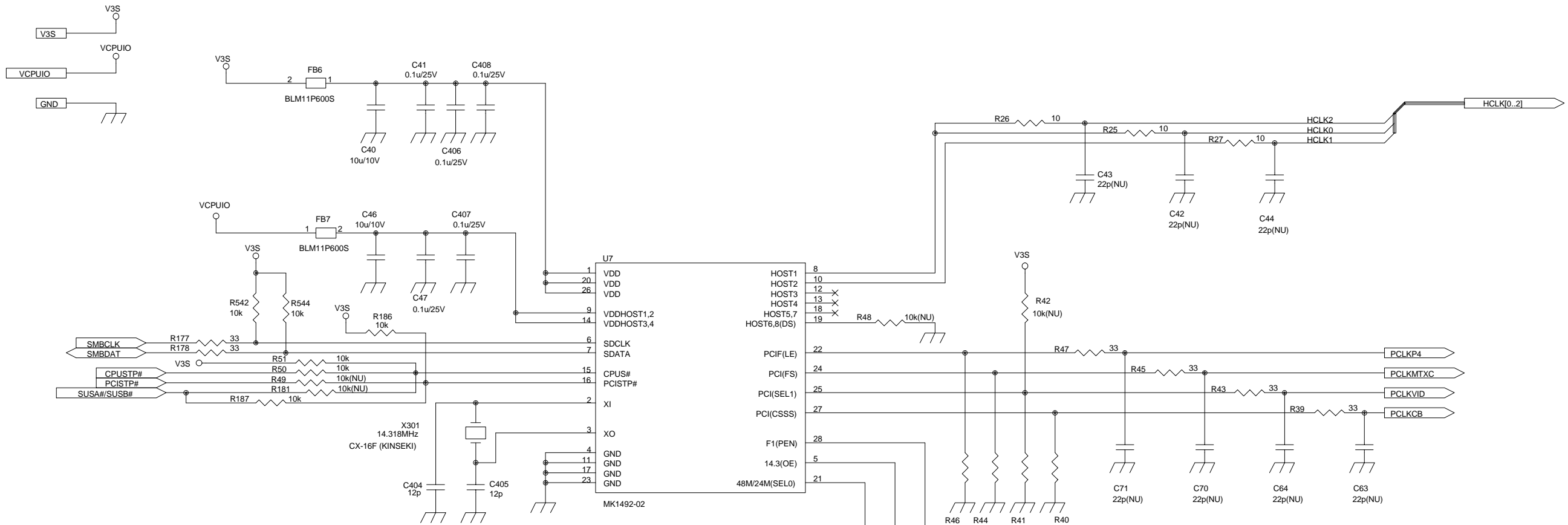
PC-A150U,Y,A,C CACHE AND TAG SRAM (REV 1.B)



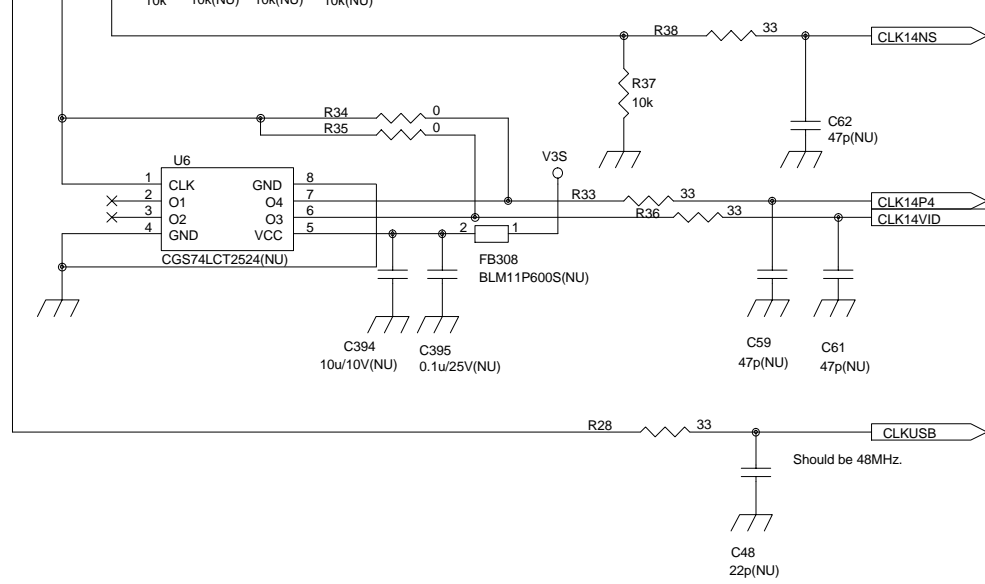
PC-A150U,Y,A,C MAIN MEMORY EDO 64MB (REV 1.B)



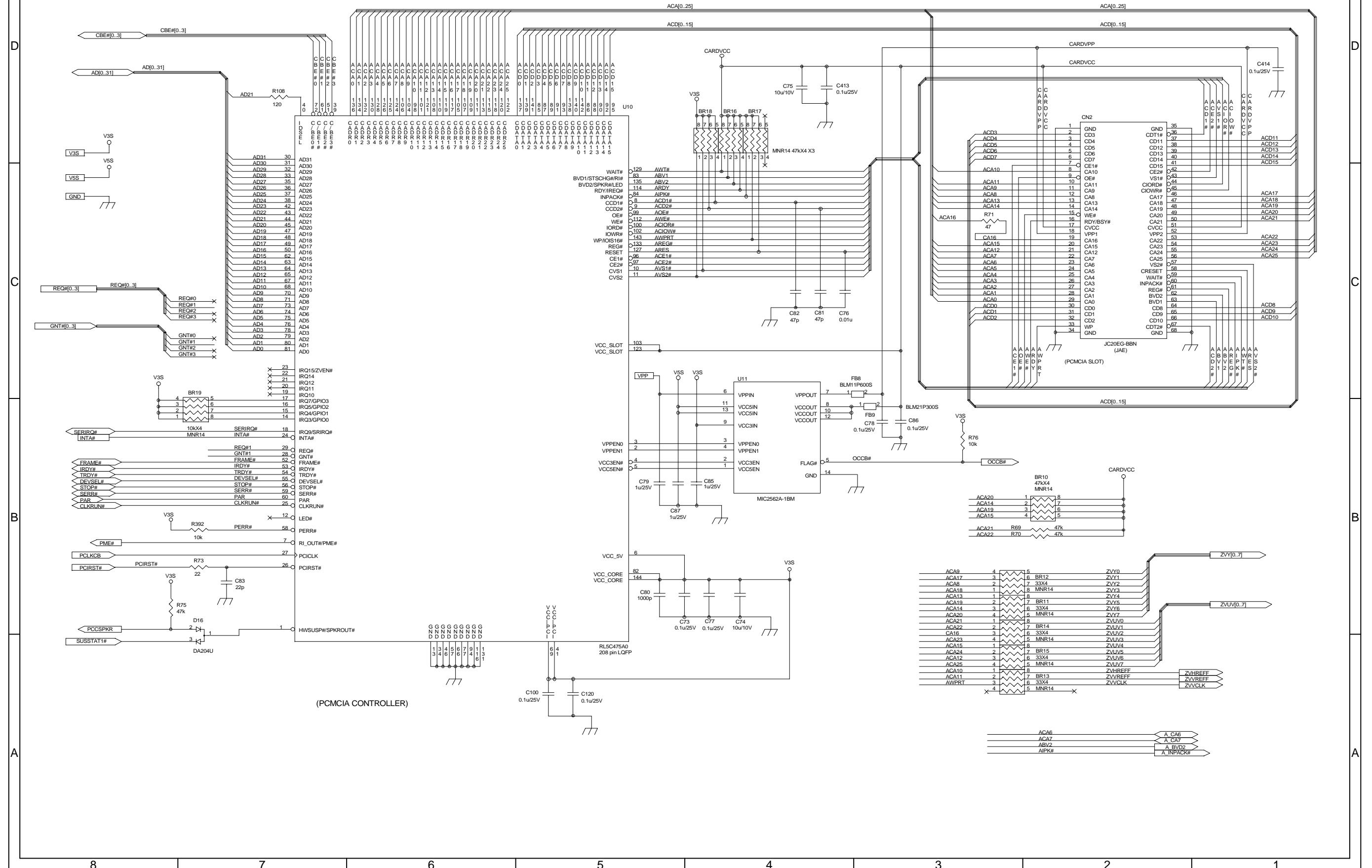
PC-A150U,Y,A,C CLOCK GENERATOR AND DRIVER (REV 1.B)



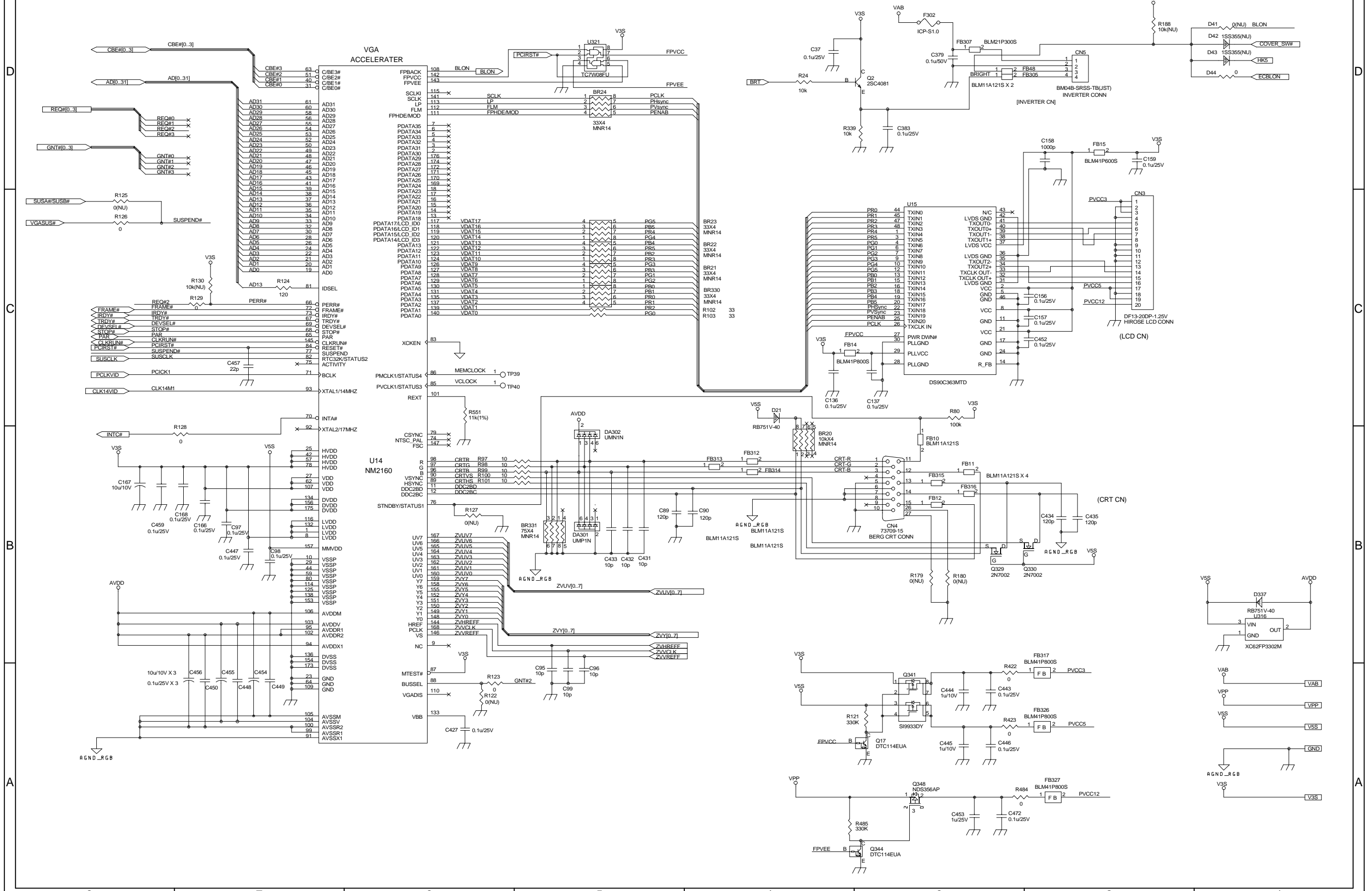
SIGNAL	FUNCTION	DEFAULT	SETTING
OE	ALL CLOCK OUTPUTS	M	0 TRISTATED M,1 ENABLE
DS	HOST7,8	1	0 ENABLE 1 TEI,STATED
SEL0	48M/24M FREQUENCY	1	0 24.0 1 48.0
LE	LOW EMI	1	0 ON 1 OFF
CPUS#/CSSS/FS	HOST/PCI FREQUENCY	1/1/1	1/X/0 60.0(OE=M) 50.0(OE=1) 1/X/1 66.6(OE=M) 75.0(OE=1) M/0/X 33.33(OE=M) 33.33(OE=1)
SEL1	F1 FREQUENCY	M	0 PCI M 14.318 1 24.0
PEN	PCIF ENABLE	M	0 Pin25=PCI Pin24=PCI M Pin25=PCI Pin24=PCIF 1 Pin25=PCIF Pin24=PCIF



PC-A100U,Y,A,C PCMCIA CONTROLLER (REV 1.B)

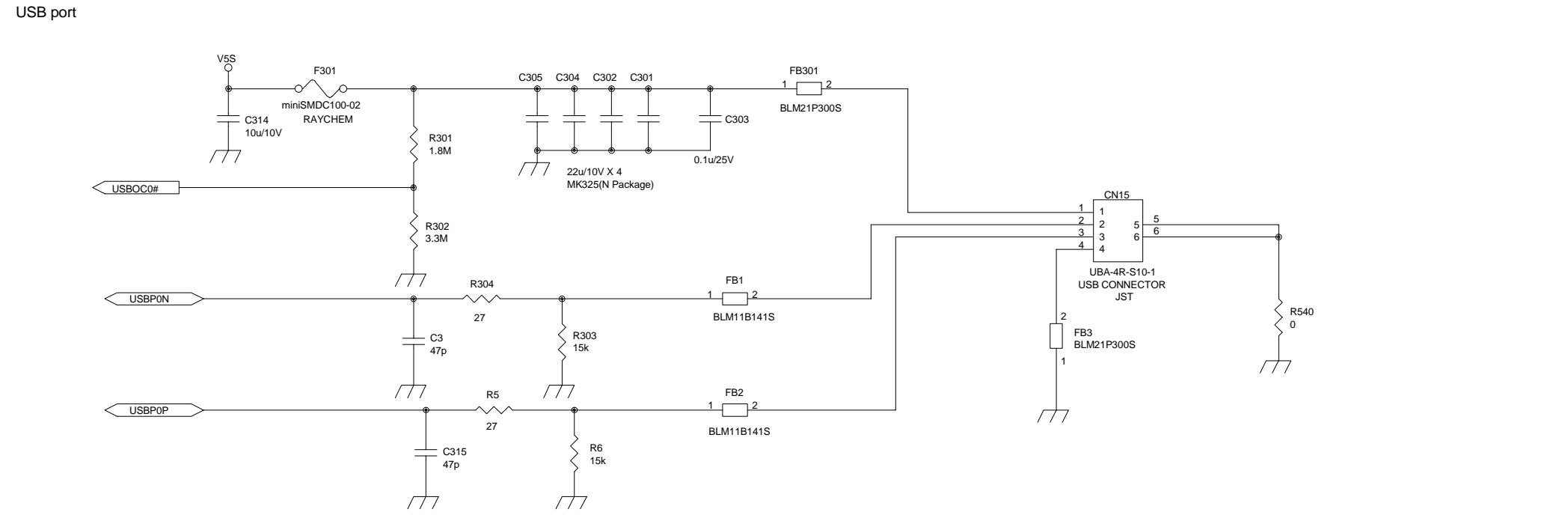
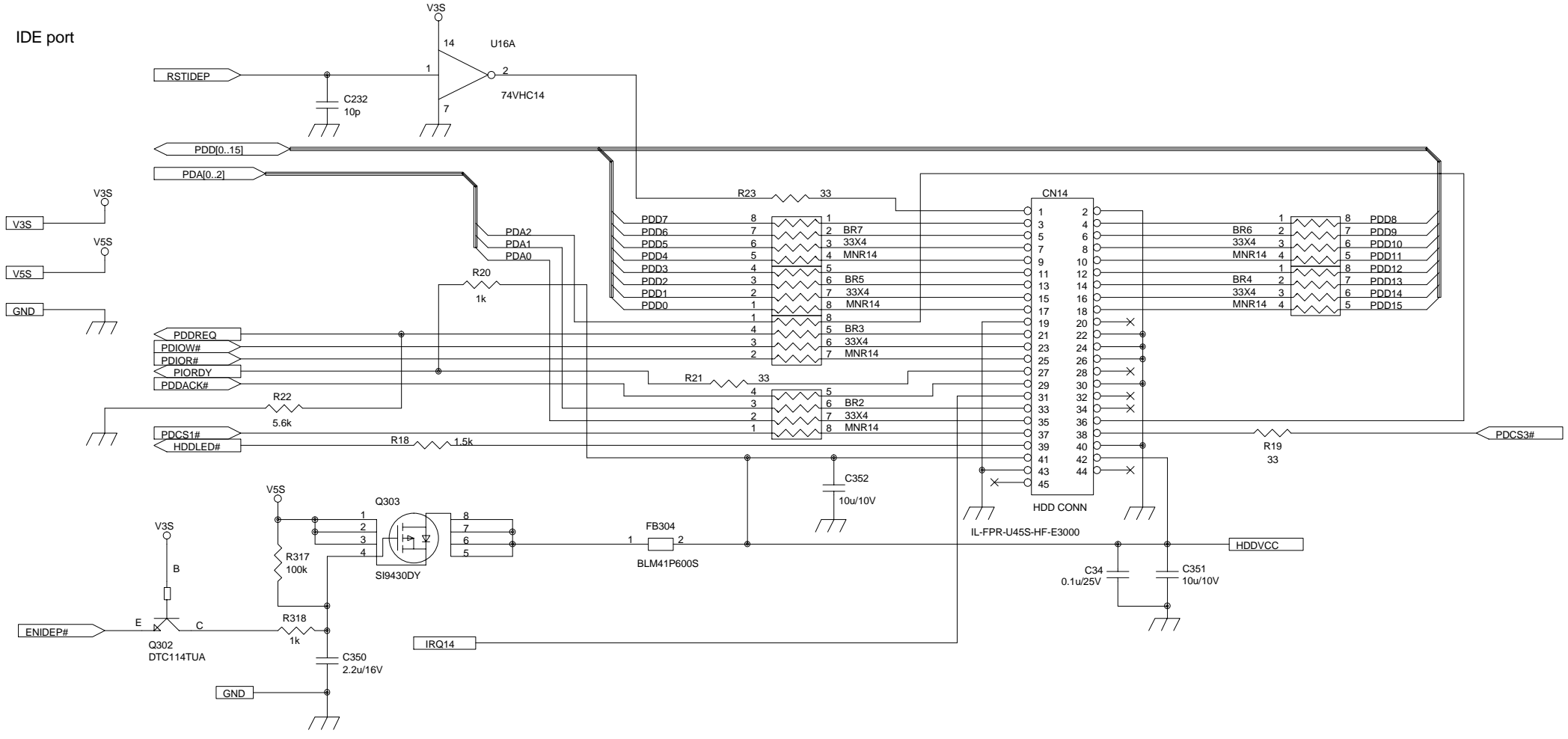


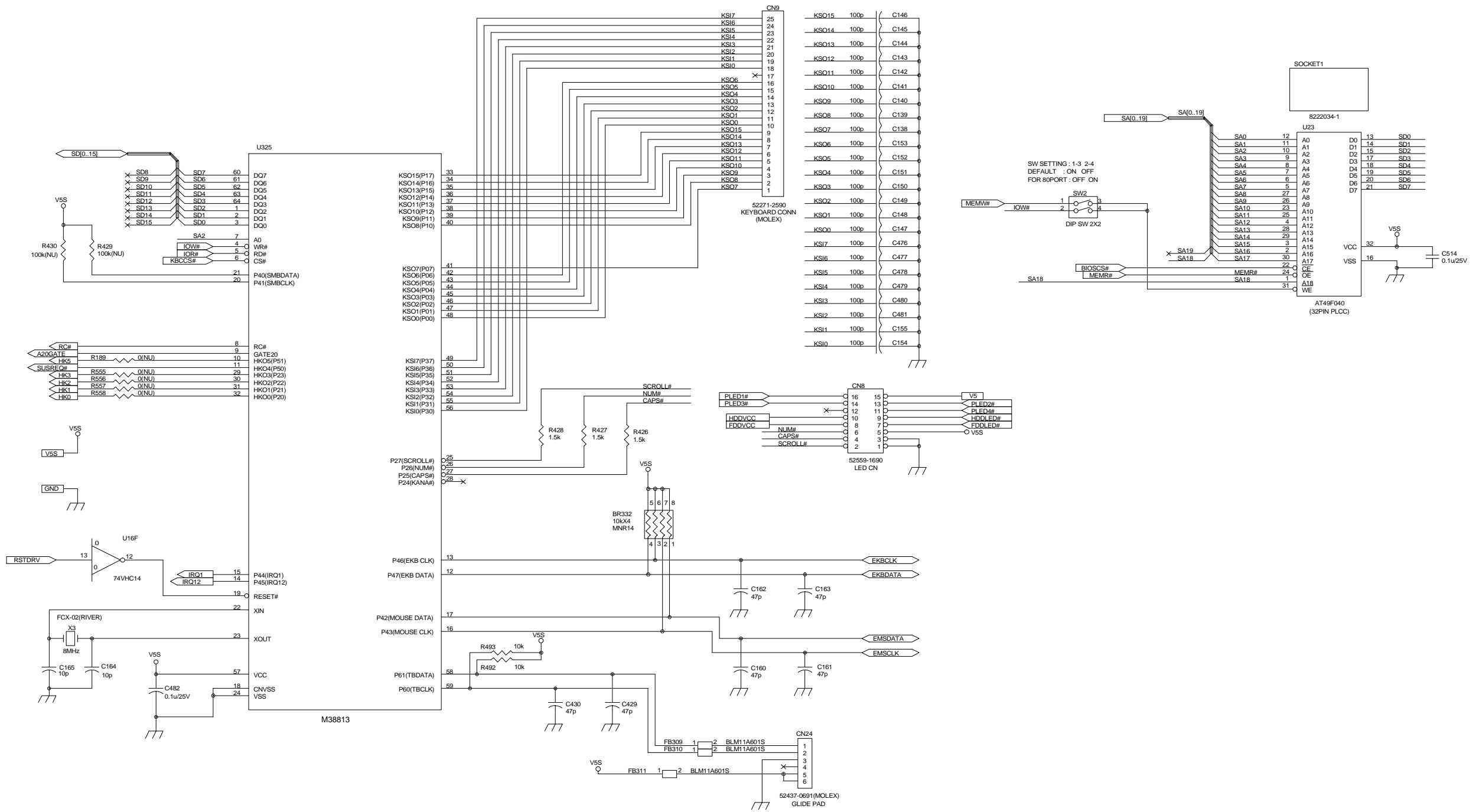
PC-A150U,Y,A,C VIDEO CONTROLLER (REV 1.B)



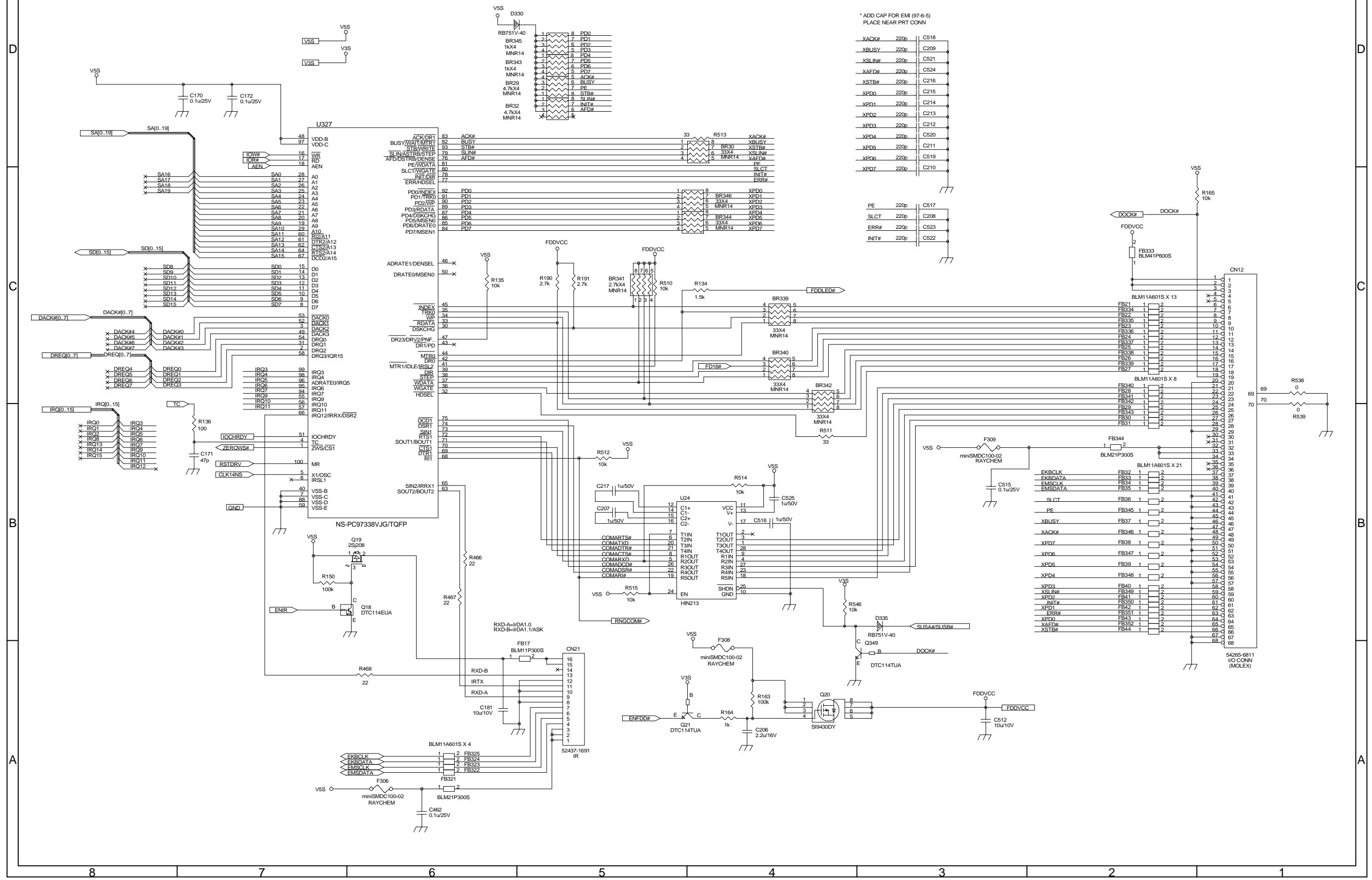
PC-A150U,Y,A,C IDE/USB INTERFACE (REV 1.B)

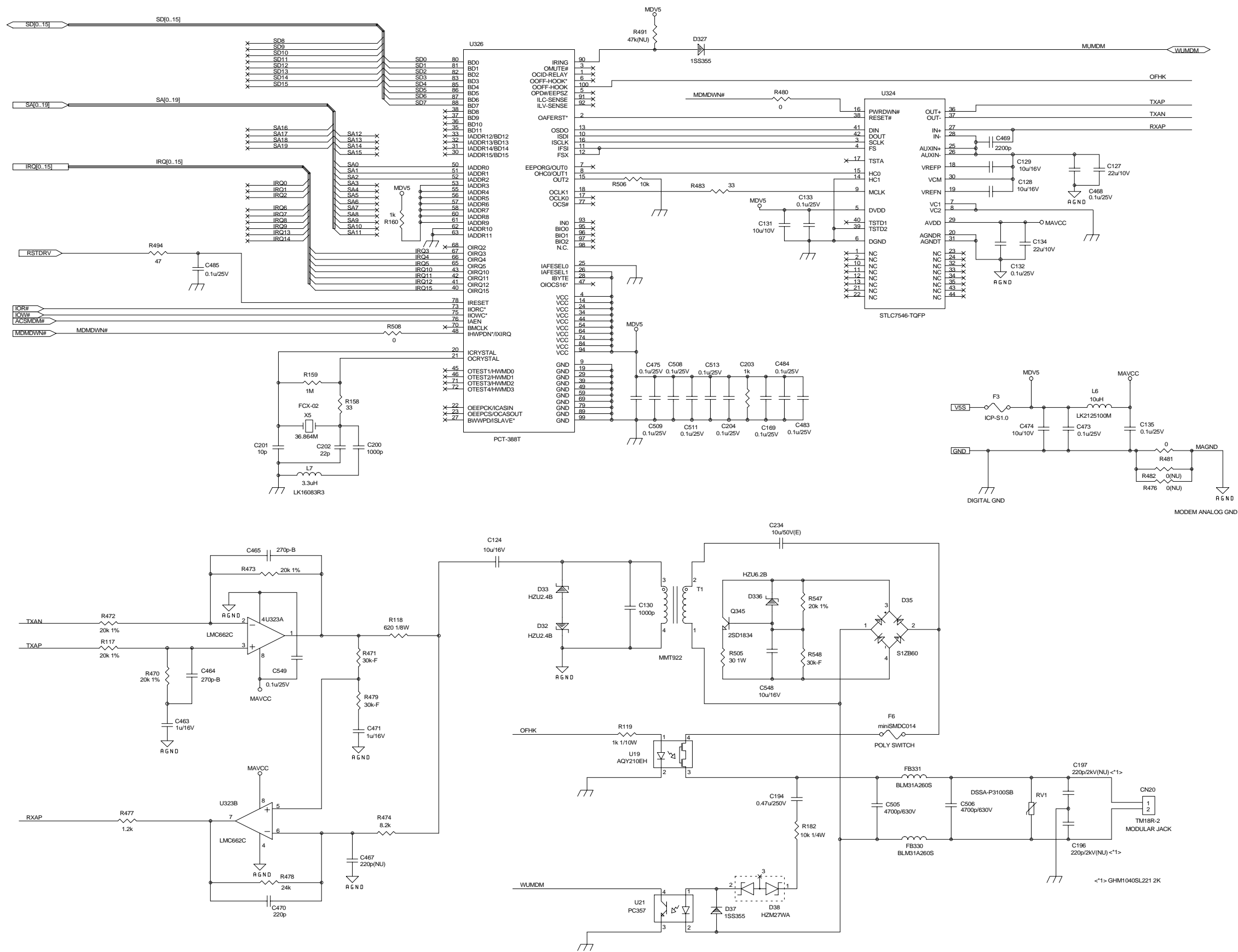
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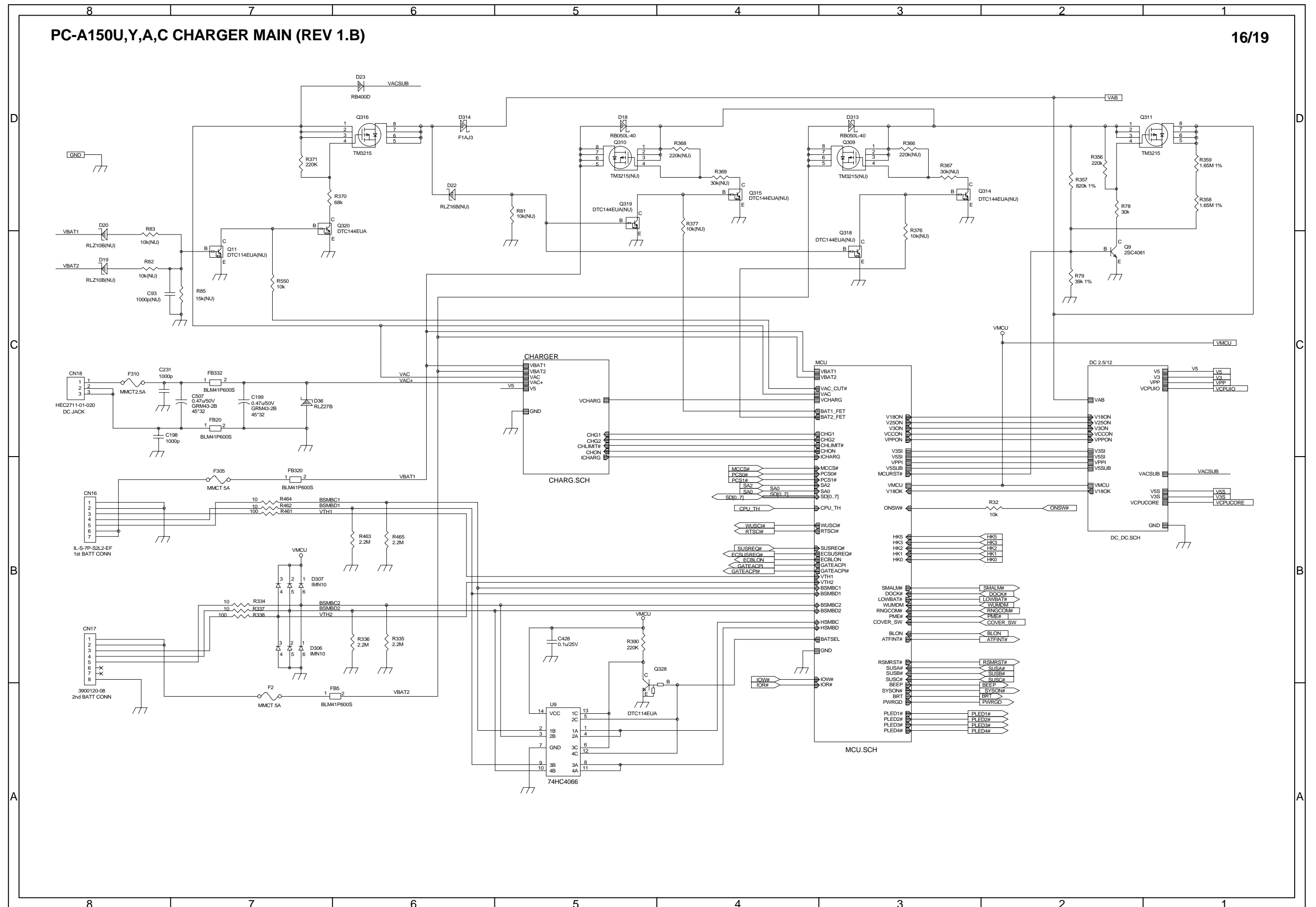


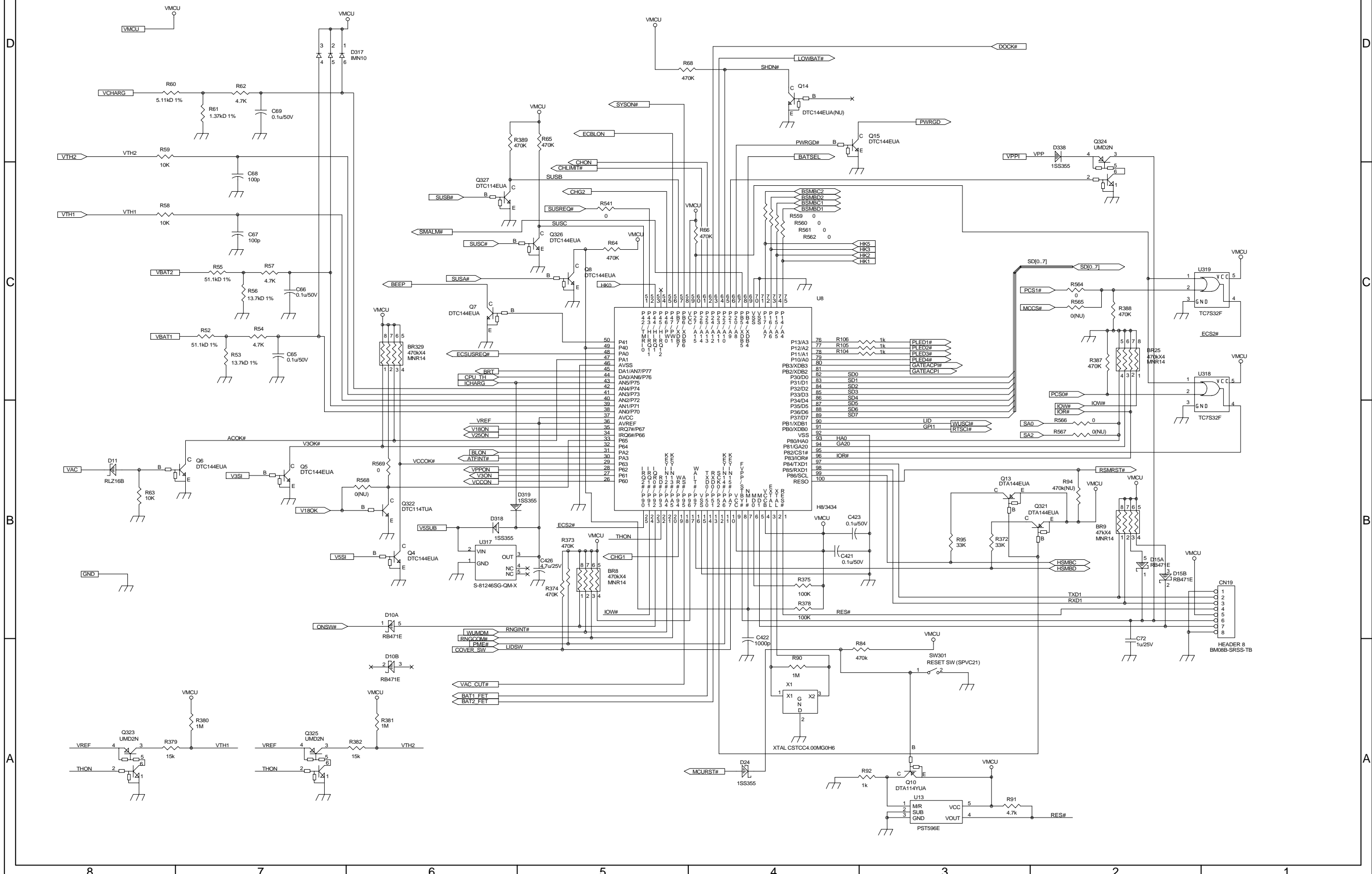
PC-A150U,Y,A,C SUPER I/O (REV 1.B)





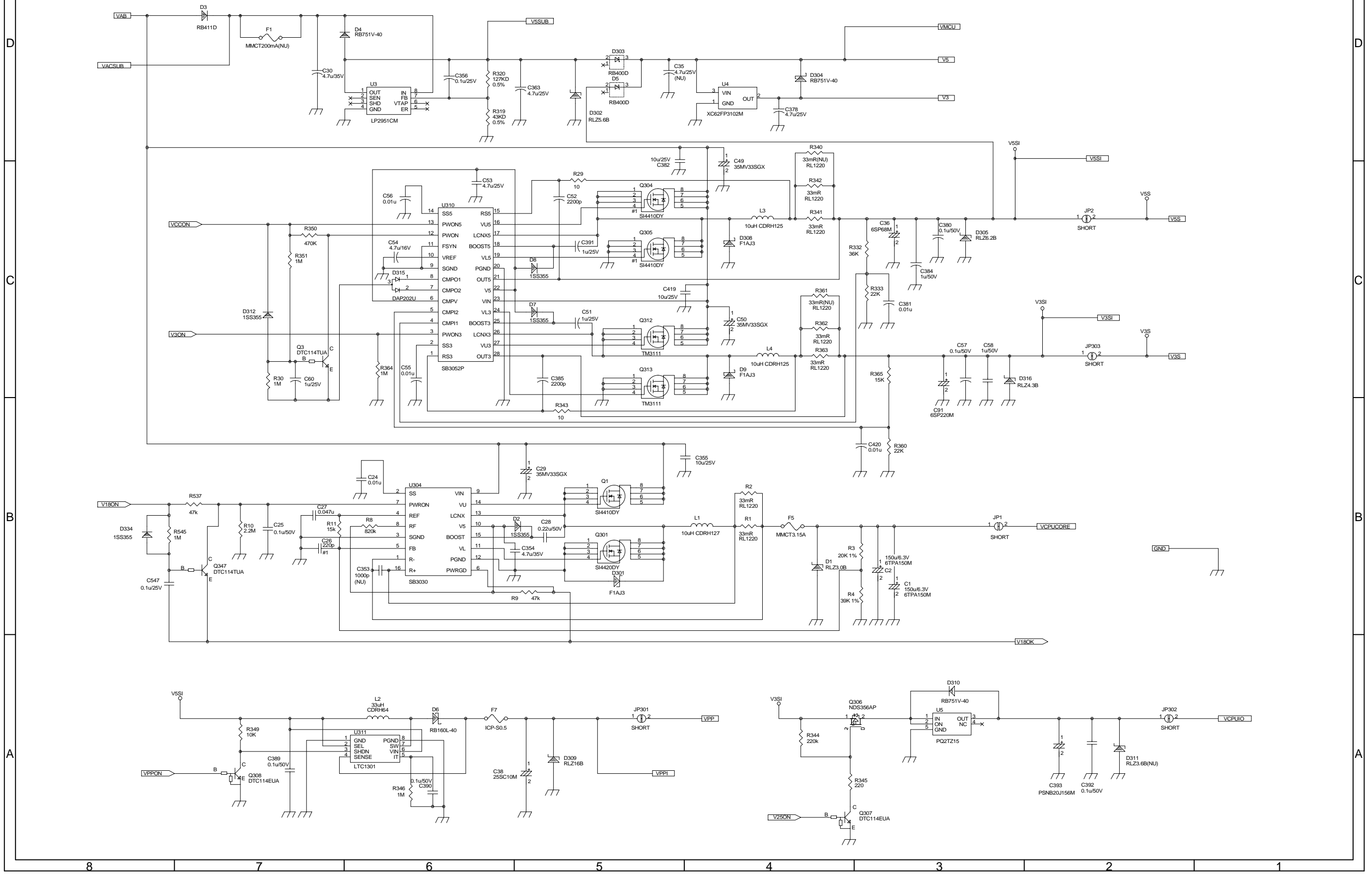
PC-A150U,Y,A,C CHARGER MAIN (REV 1.B)



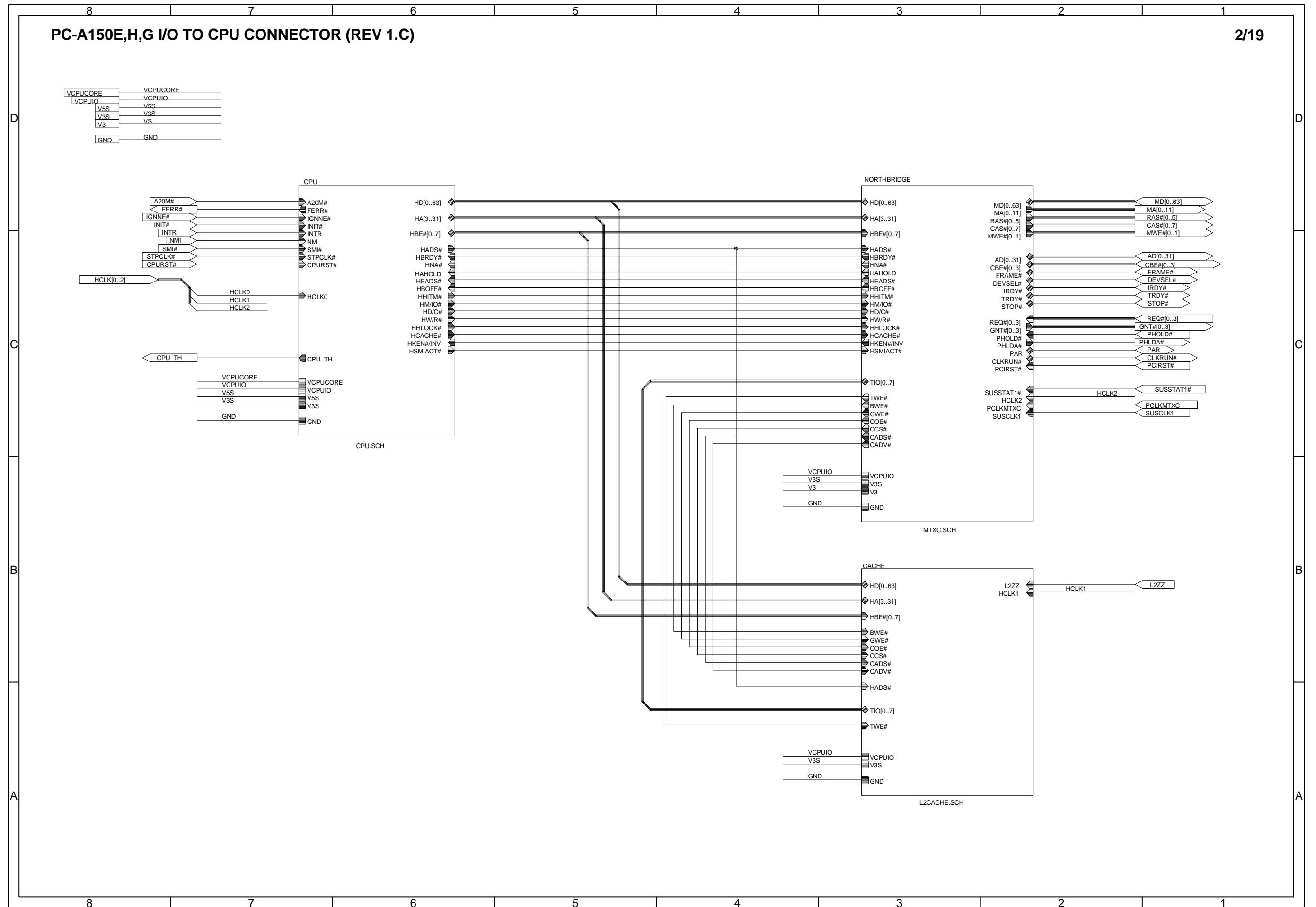


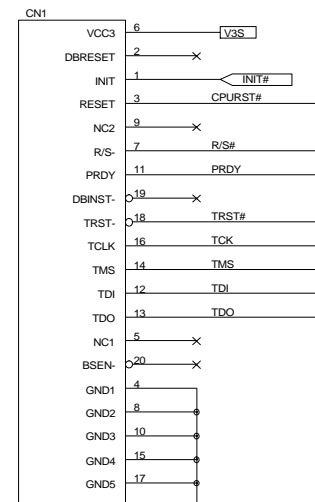
PC-A150U,Y,A,C DC/DC (REV 1.B)

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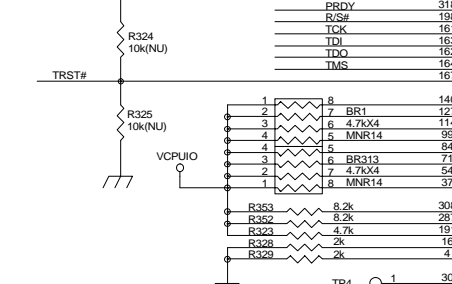
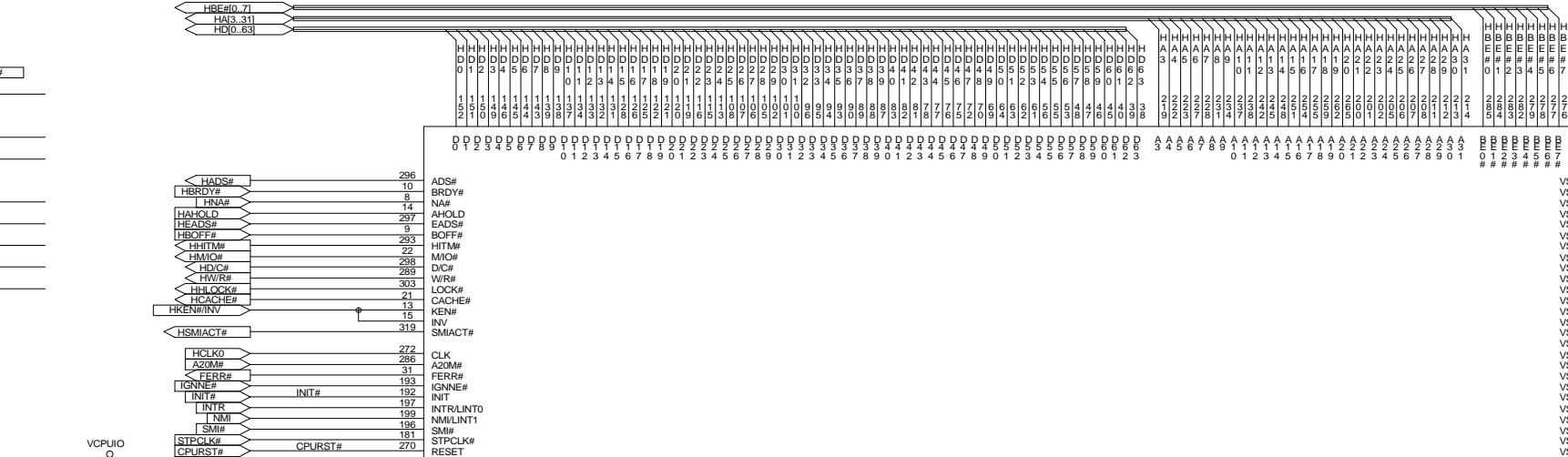
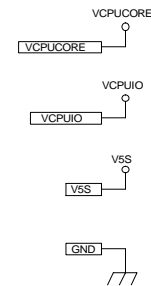


PC-A150E,H,G I/O TO CPU CONNECTOR (REV 1.C)





DF13-20DP-1.25V(NU)
ICE CONNECTOR

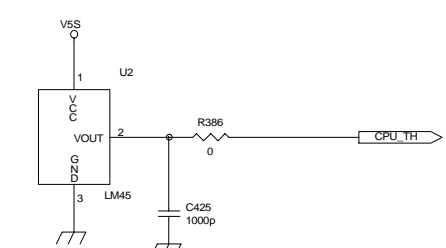
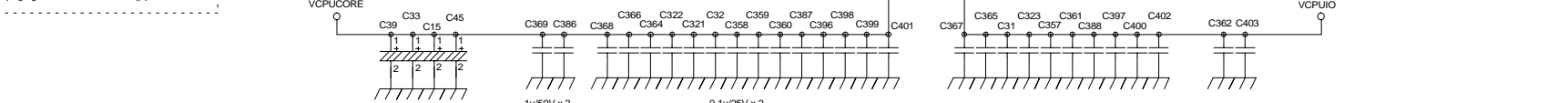
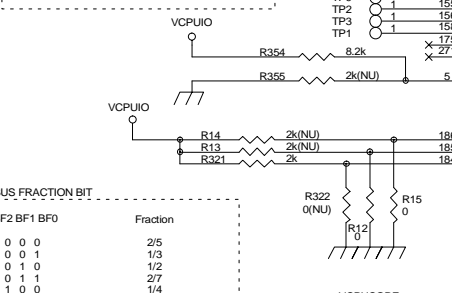


CACHE WRITE POLICY

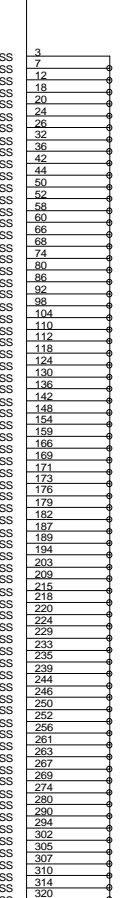
WB/WT#	0	Write-Through
	1	Write-Back

BUS FRACTION BIT

BF2 BF1 BF0	Fraction
0 0 0	2/5
0 0 1	1/3
0 1 0	1/2
0 1 1	2/7
1 0 0	1/4

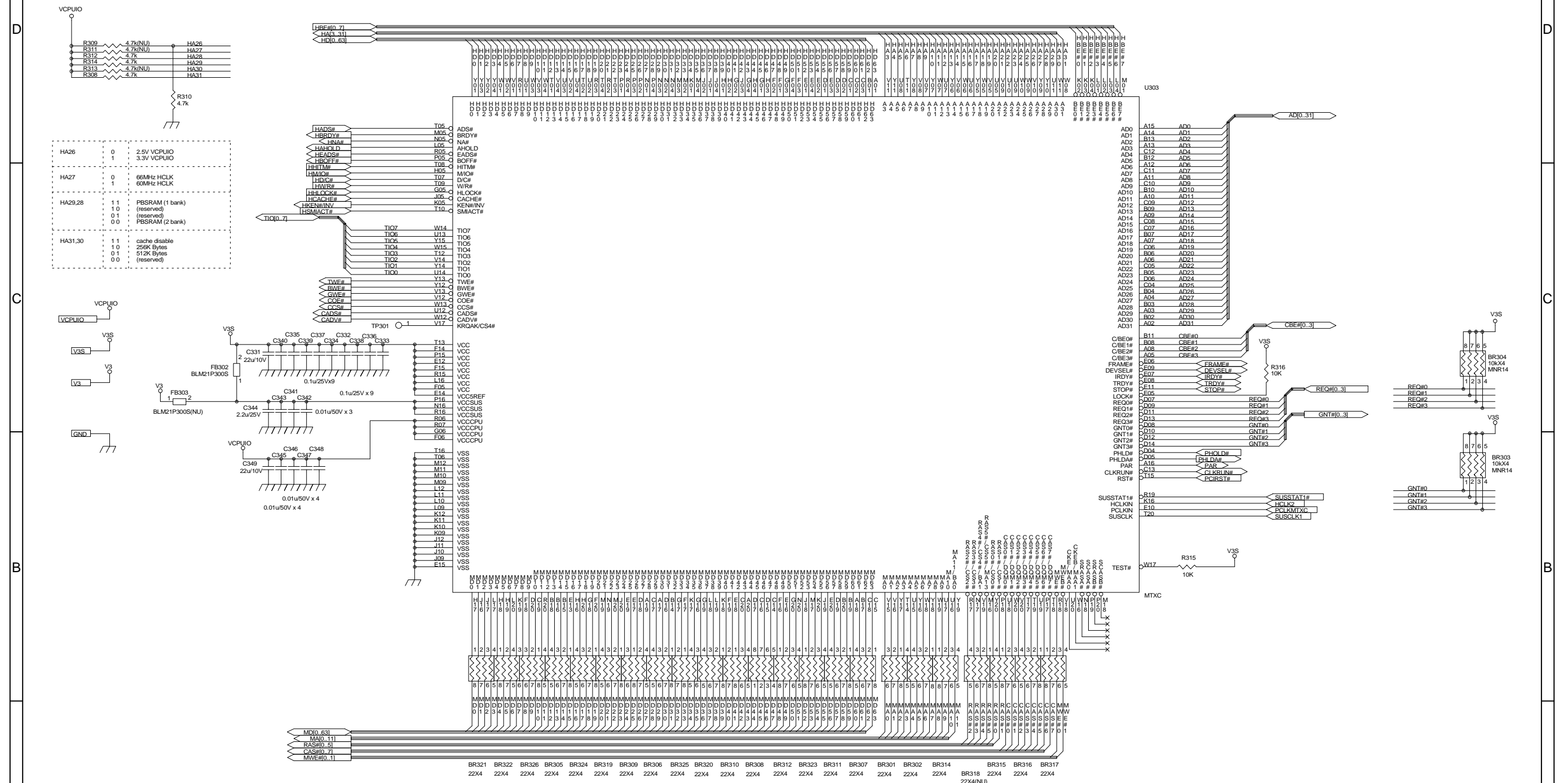


U305

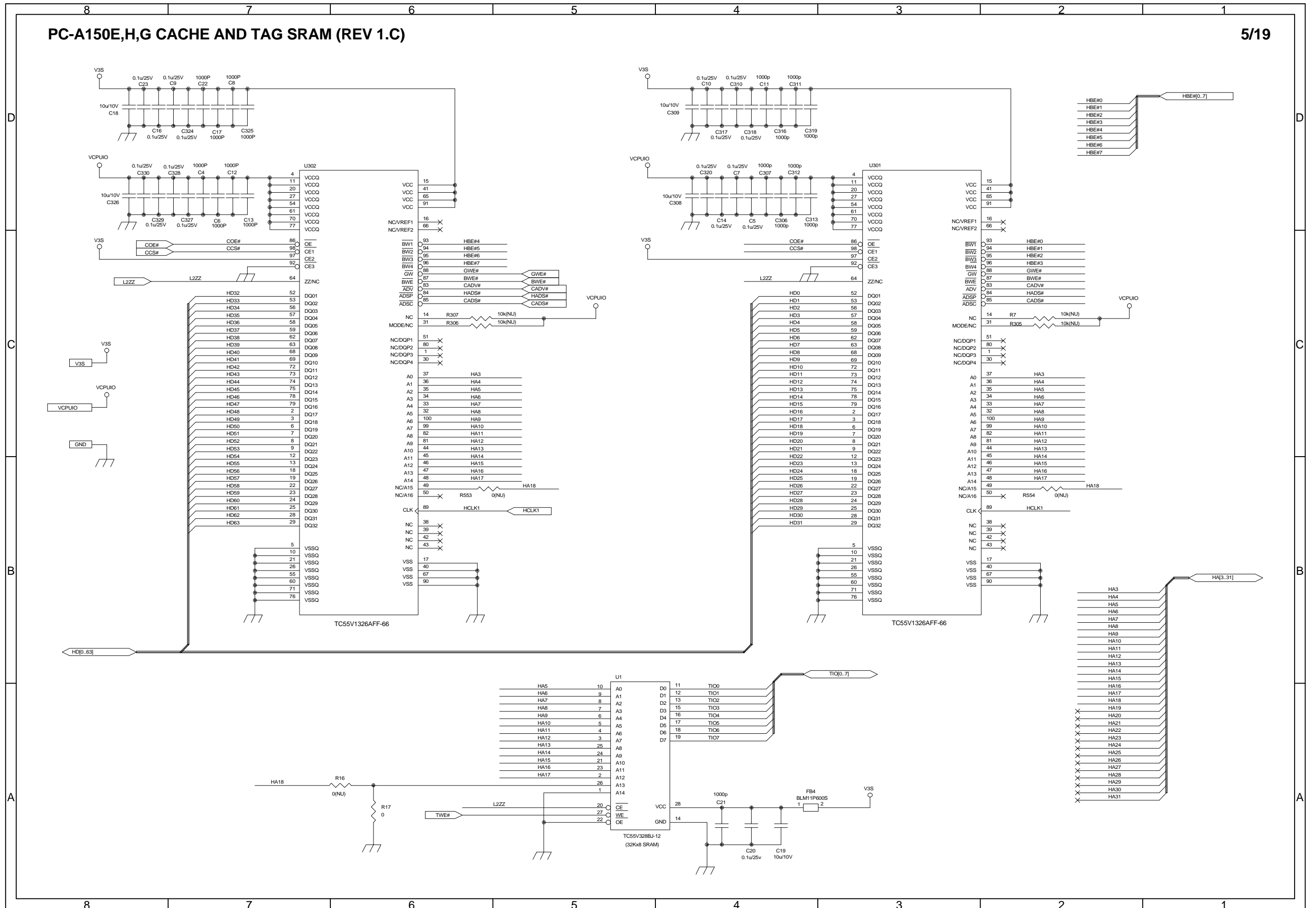


CPU TCP320P

PC-A150E,H,G Northbridge (REV 1.C)



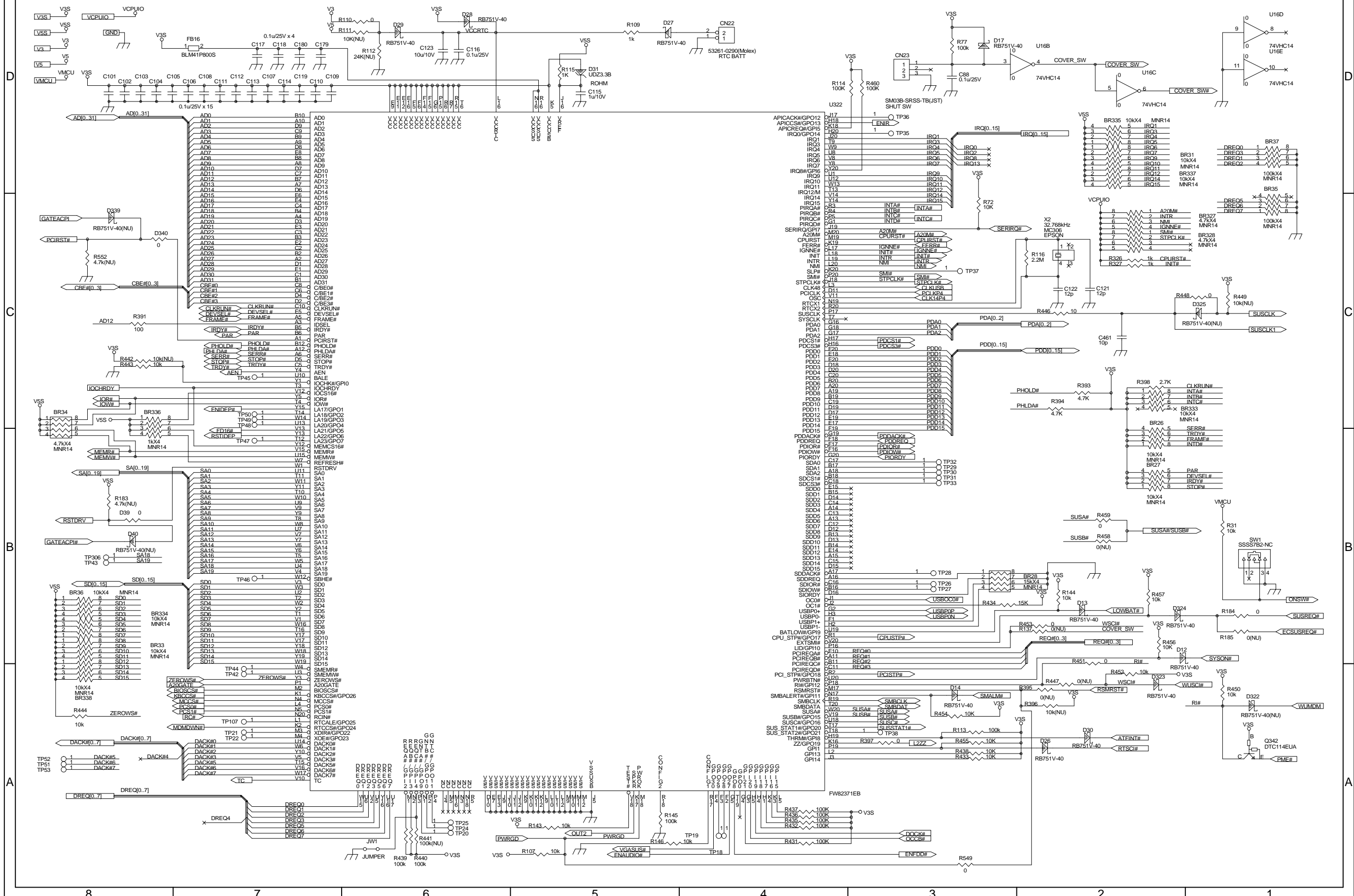
PC-A150E,H,G CACHE AND TAG SRAM (REV 1.C)



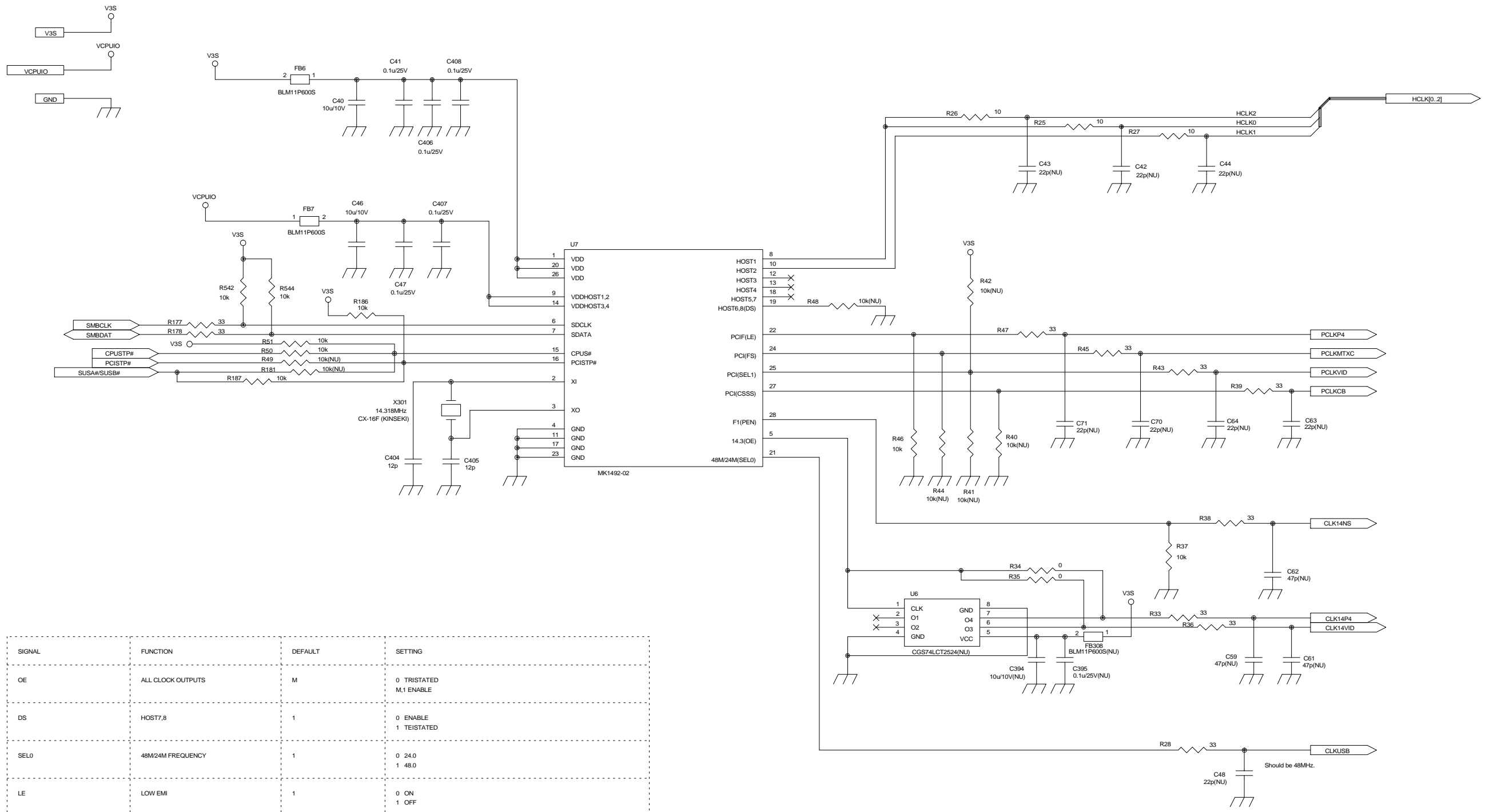
PC-A150E,H,G MAIN MEMORY EDO 64MB (REV 1.C)



PC-A150E,H,G South Bridge (PIIX4E) (REV 1.C)

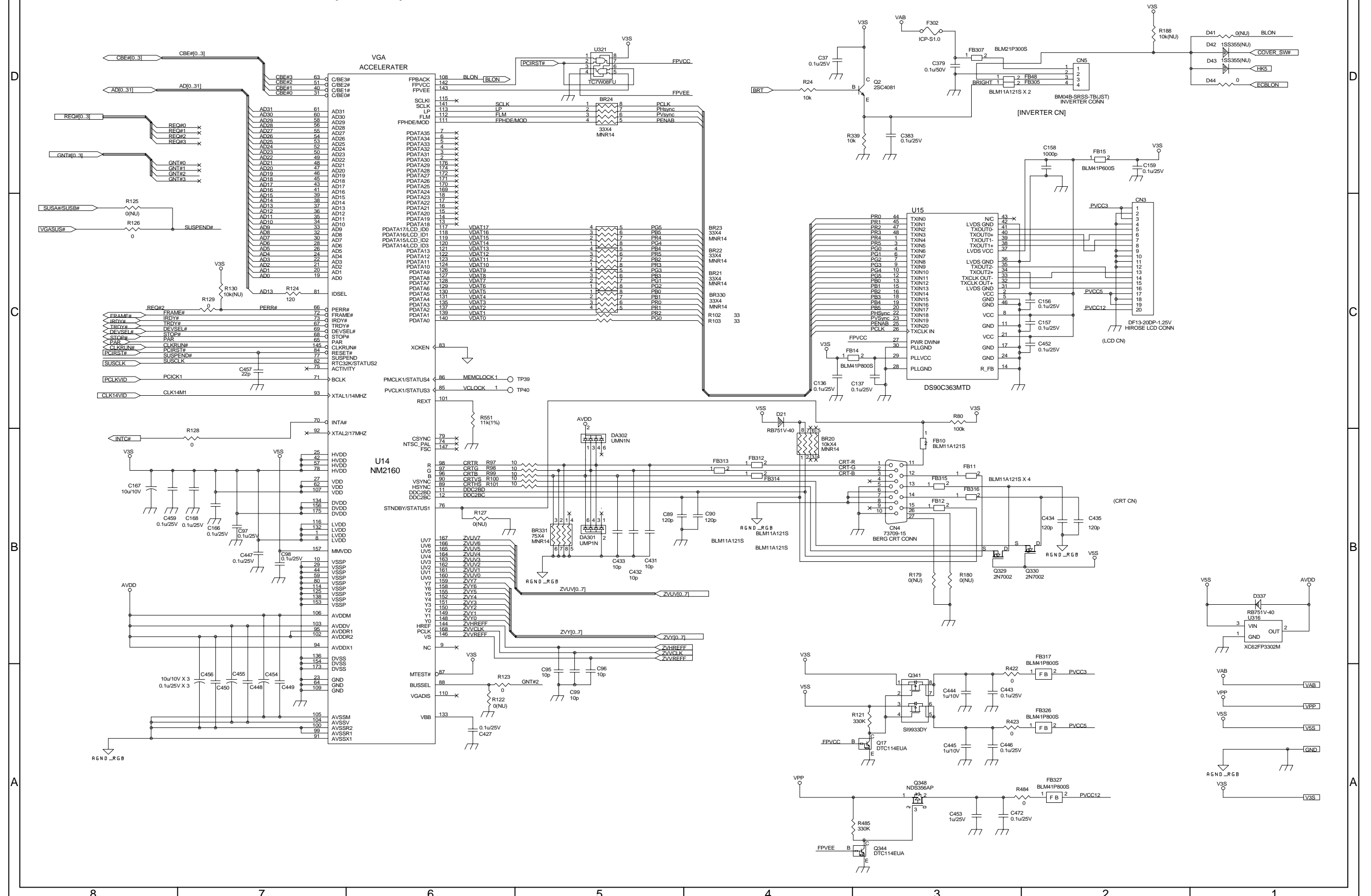


PC-A150E,H,G CLOCK GENERATOR AND DRIVER (REV 1.C)



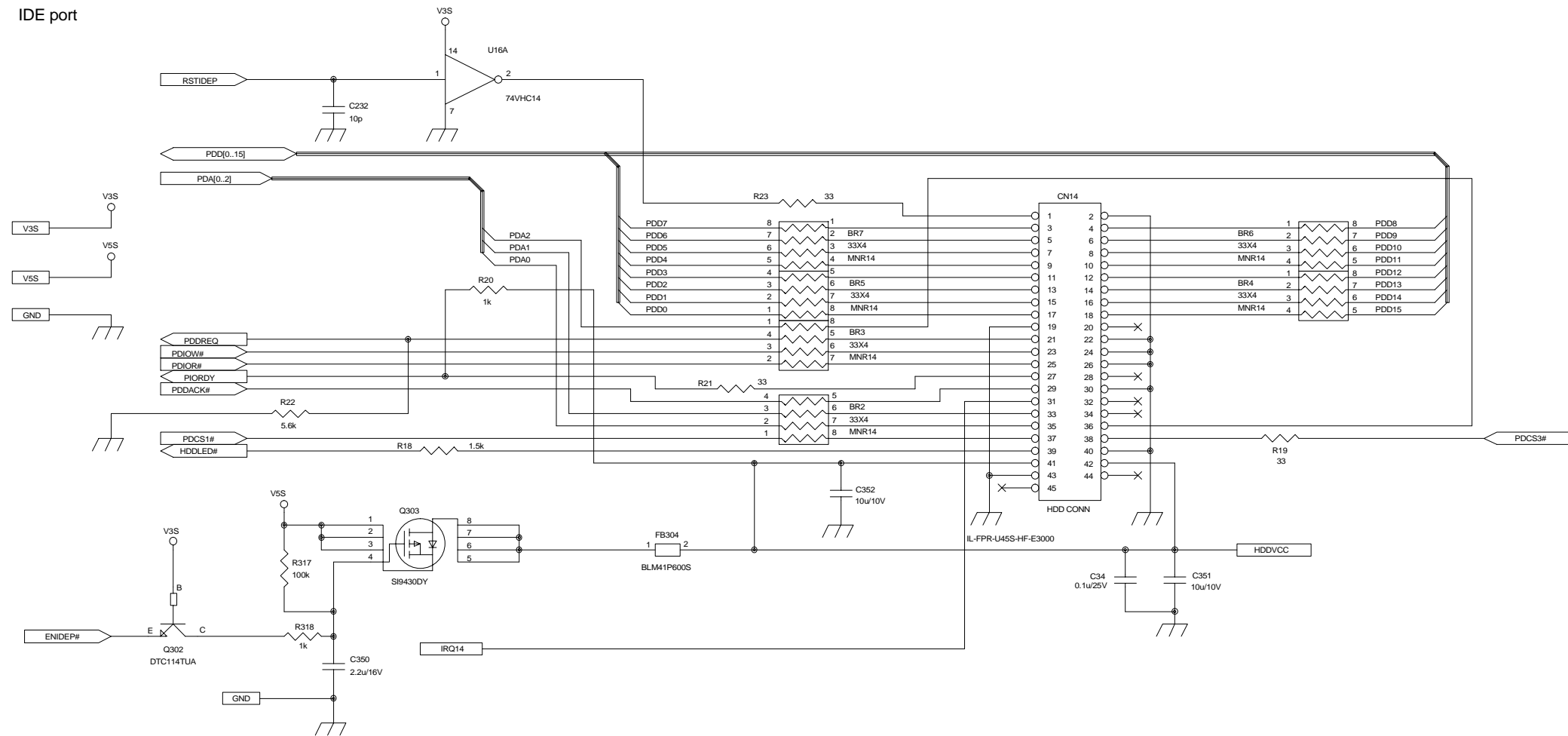
SIGNAL	FUNCTION	DEFAULT	SETTING
OE	ALL CLOCK OUTPUTS	M	0 TRISTATED M,1 ENABLE
DS	HOST7,8	1	0 ENABLE 1 TEISTATED
SEL0	48M24M FREQUENCY	1	0 24.0 1 48.0
LE	LOW EMI	1	0 ON 1 OFF
CPUS#/CSSS/FS	HOST/PCI FREQUENCY	1/1/1	1/X/0 60.0(OE=M) 50.0(OE=1) 1/X/1 66.6(OE=M) 75.0(OE=1) M/O/X 33.33(OE=M) 33.33(OE=1)
SEL1	F1 FREQUENCY	M	0 PCI M 14.318 1 24.0
PEN	PCIF ENABLE	M	0 Pin25=PCI Pin24=PCI M Pin25=PCI Pin24=PCIF 1 Pin25=PCIF Pin24=PCIF

PC-A150E,H,G VIDEO CONTROLLER (REV 1.C)

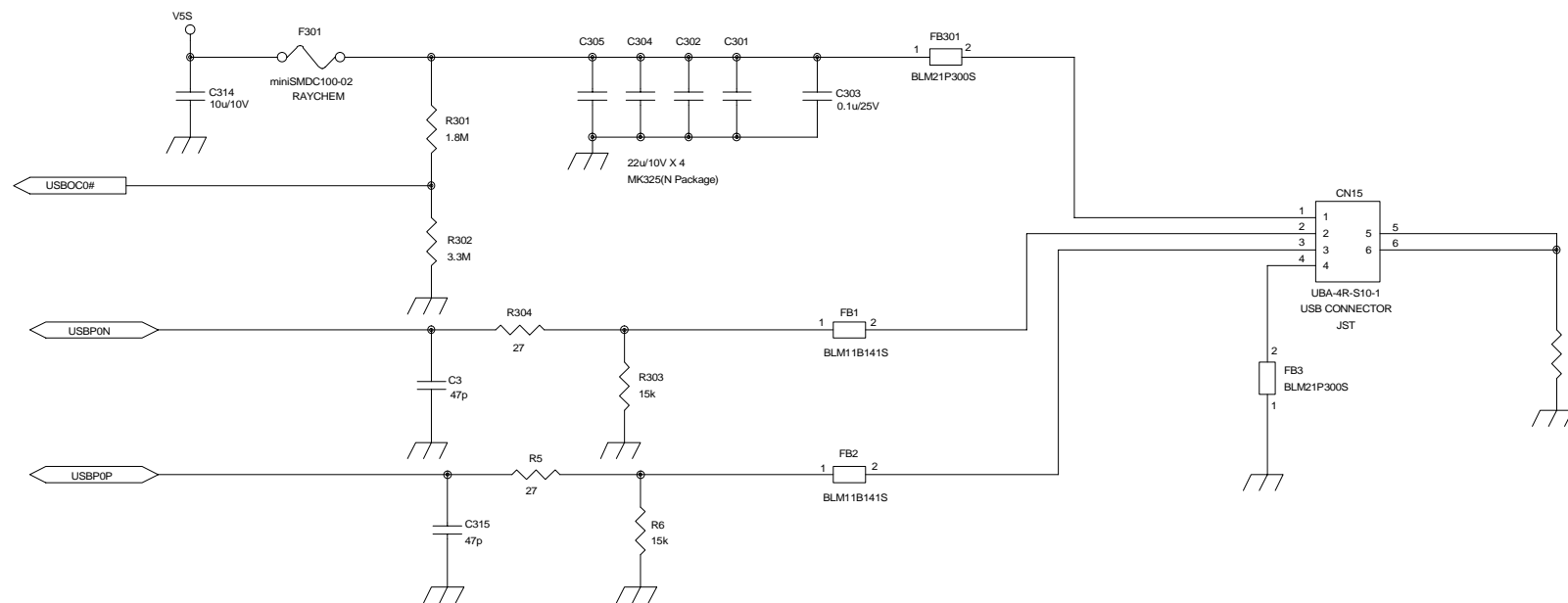


PC-A150E,H,G IDE/USB INTERFACE (REV 1.C)

IDE port

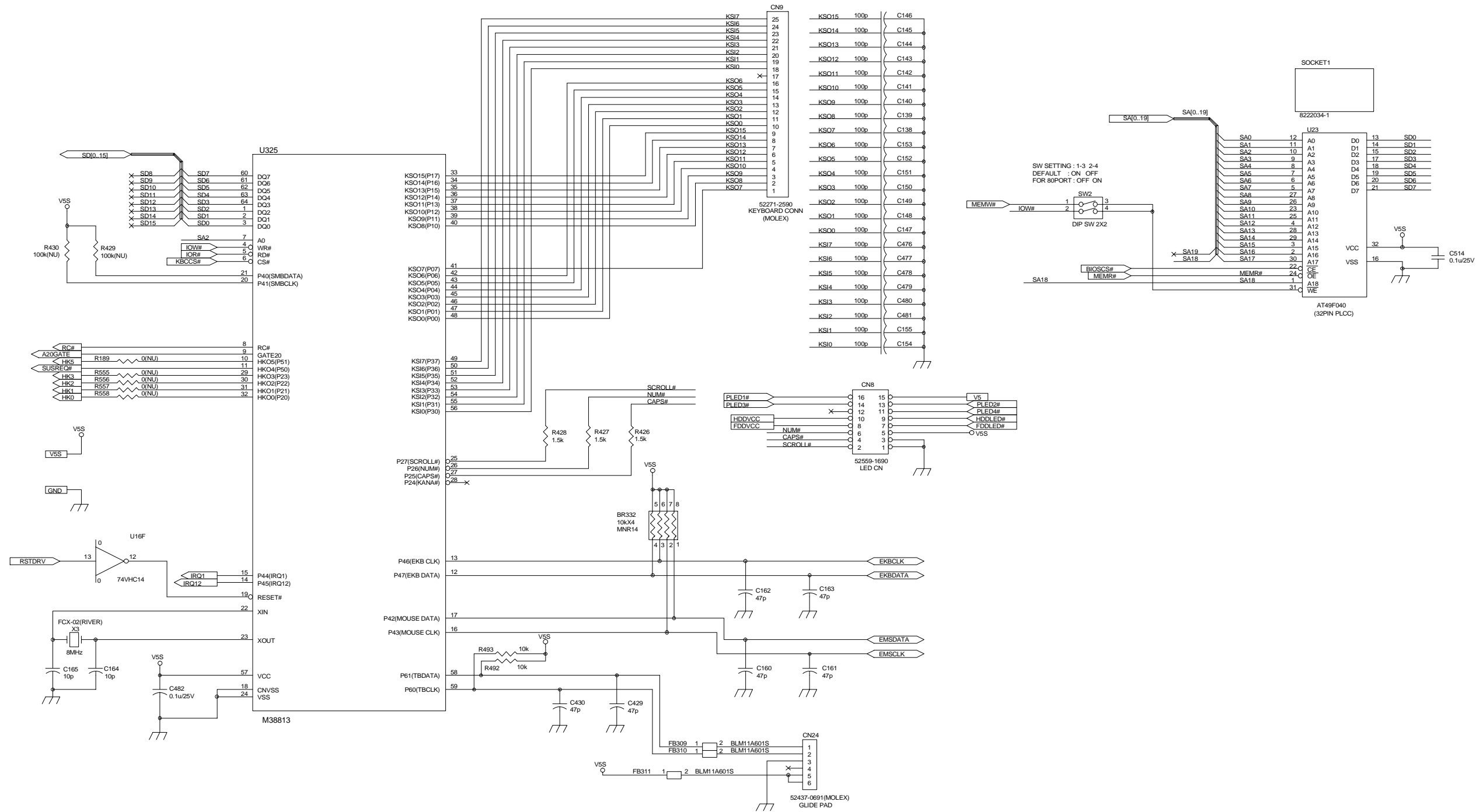


USB port

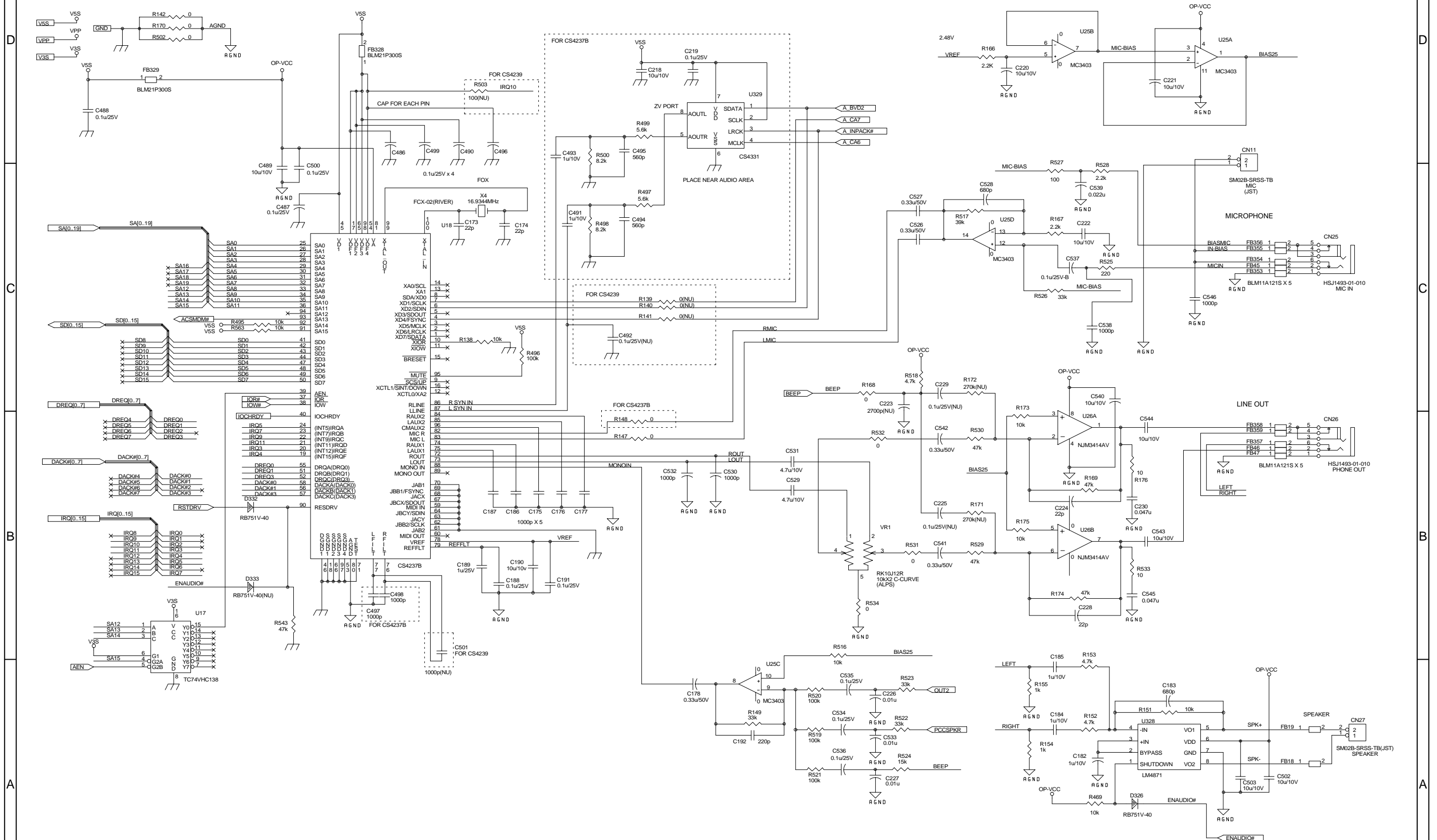


PC-A150E,H,G BIOS AND KEYBOARD CONT. (REV 1.C)

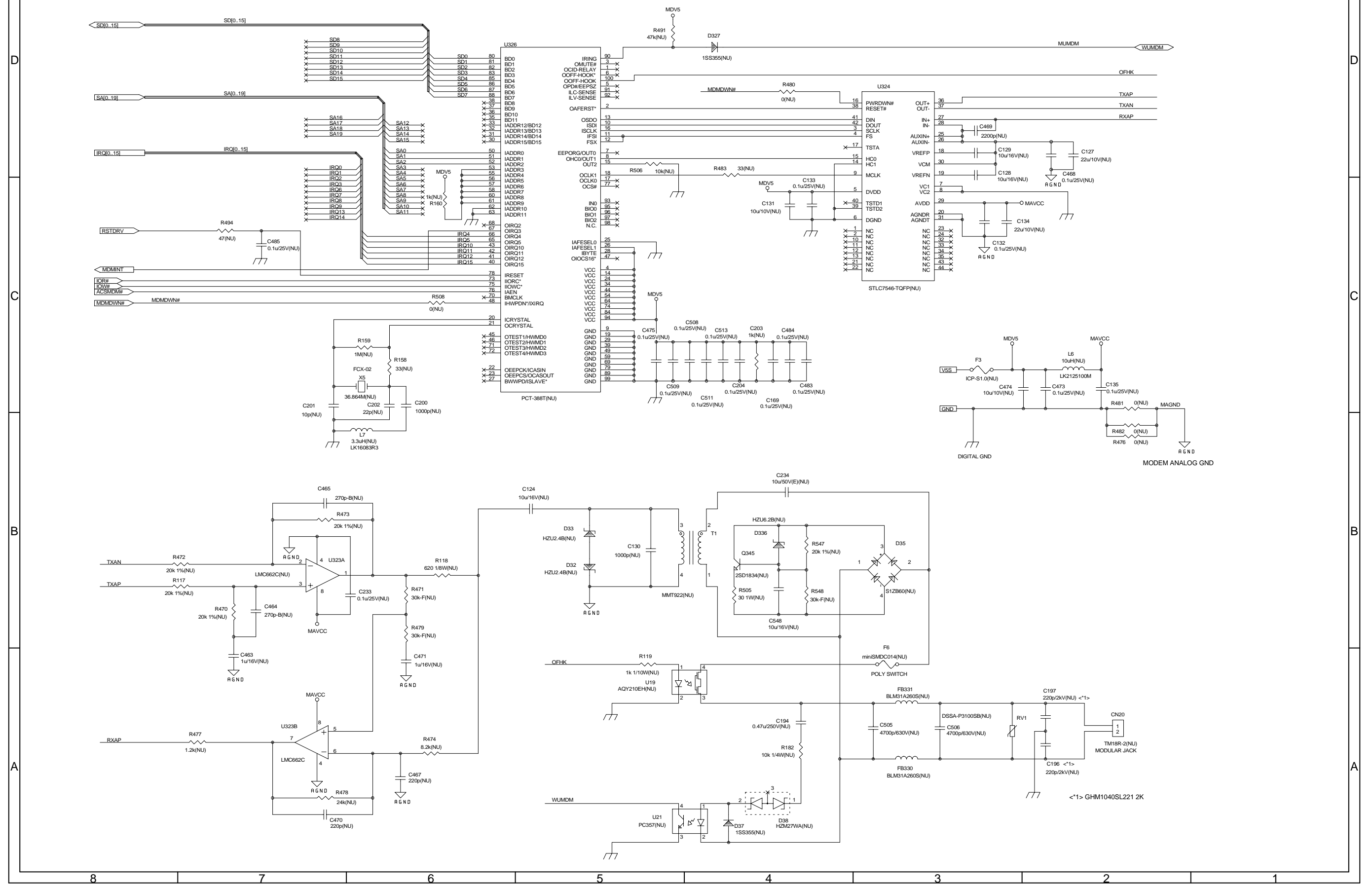
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PC-A150E,H,G AUDIO CONTROLLER (REV 1.C)

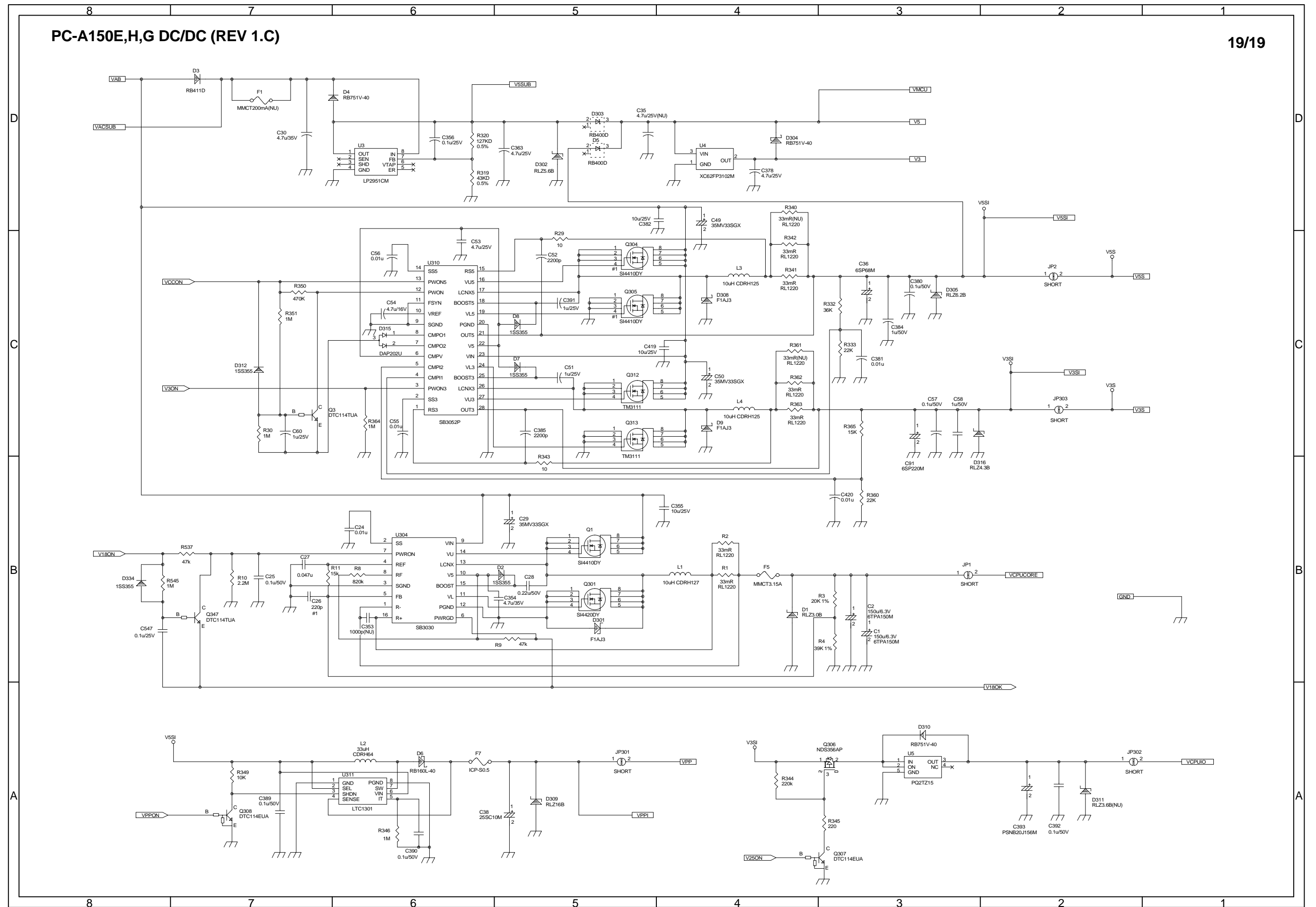


A150E,H,G 56k/SOFT MODEM (REV 1.C)

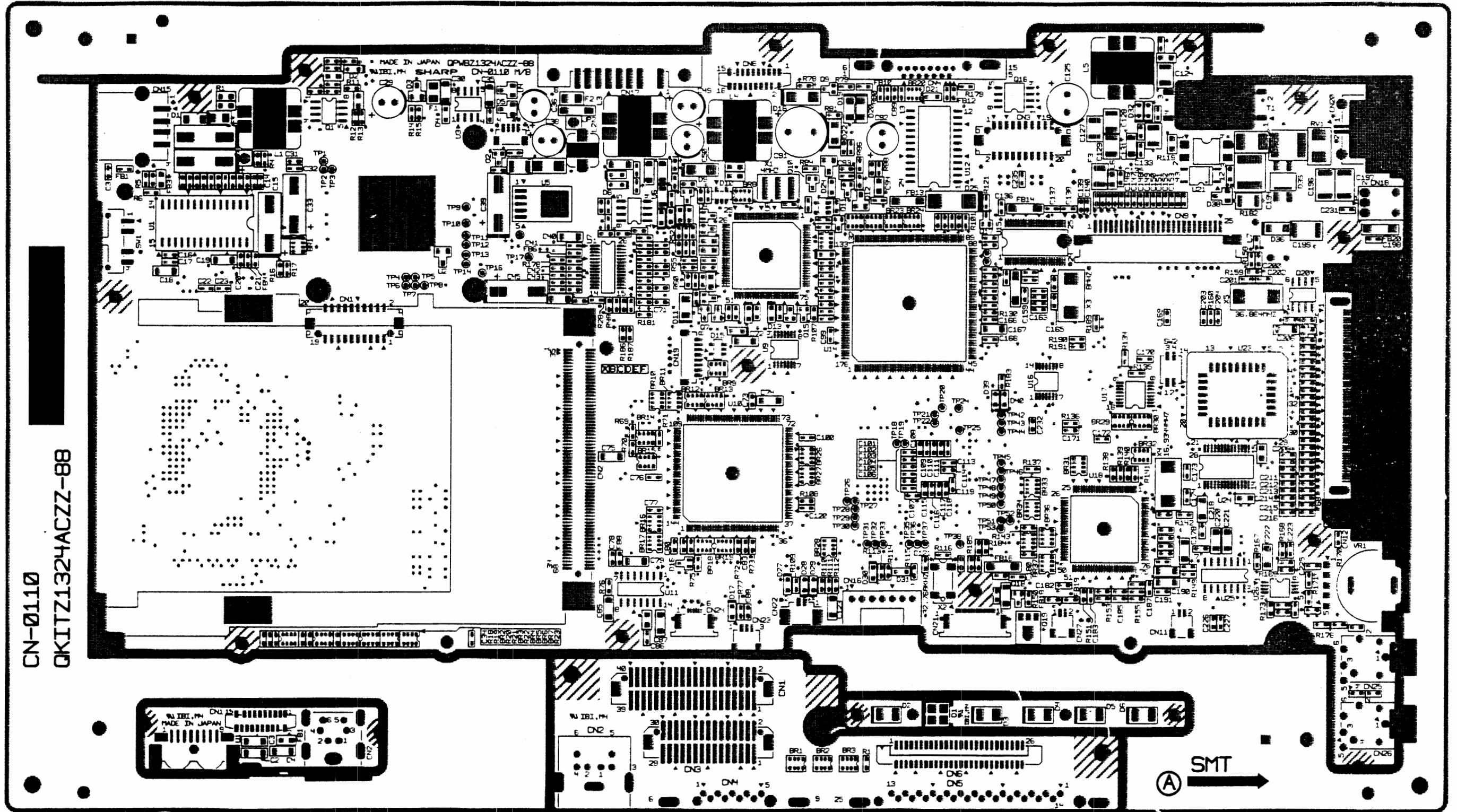


PC-A150E,H,G DC/DC (REV 1.C)

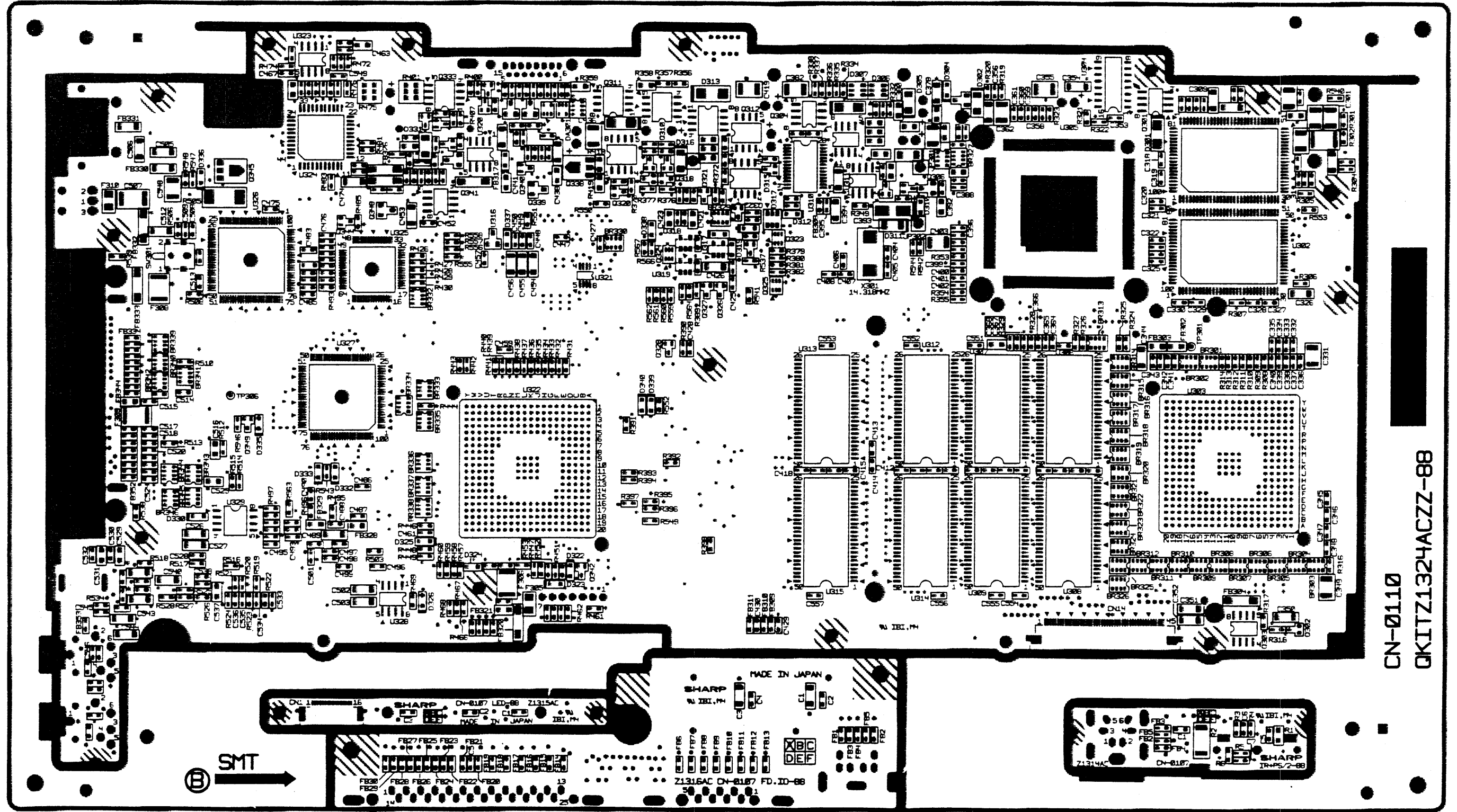
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PARTS LAYOUT
SIDE A



SIDE B



CN-01110
OKITZ1324CZZ-88

Parts list

The parts list shows parts different than those of the PC-A100.

For other parts common to both models, refer to the parts list of the PC-A100(code: 00ZPCA100UPGE).

1 Top cabinet etc.(Difference with PC-A100U/Y/A)

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
10	VVLQ113S1LH0J		N	B	LCD unit [C]
19	TLABZ2415ACZZ	AE		D	A-label [Y,A,C]

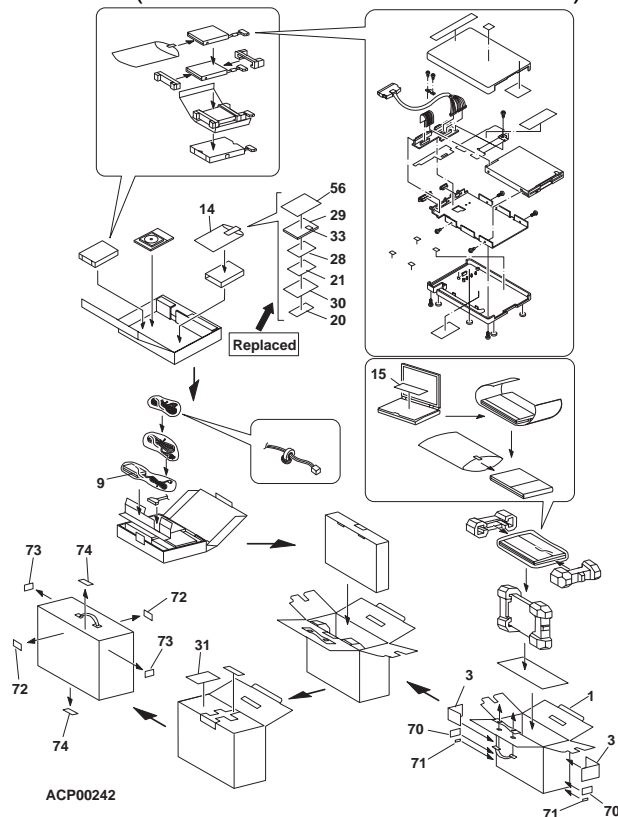
2 Bottom cabinet etc.(Difference with PC-A100U/Y/A)

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
14	CPWBZ1324ACU3		N	E	Mother board unit (Change)
20	CPWBN1320ACZ1	AT		E	Glide point PWB unit (Change)
29	DUNTK4813ACZZ	CX	N	E	HDD unit (4.3G4309) (Change)
	TLABM2432ACZZ	AE	N	D	Name plate label (Change)[U,Y,A]
66	TLABM2470ACZZ		N	D	Name plate label [C]
80				C	Glide PWB spacer (Not used)
85	PSPA Z2392ACZZ	AC	N	C	HDD spacer (Add)

3 Packing material & Accessories(Difference with PC-A100U/Y/A)

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	SPAKC3047ACZZ	AP		D	Packing case [Y,A,C]
	TLABM2435ACZZ		N	D	Model name label(packing case) (Change)[U]
3	CLABM2435AC76		N	D	Model name label(packing case) (Change)[Y]
	CLABM2320AC64	AF	N	D	Model name label(packing case) (Change)[A]
	CLABM2320AC74	AF	N	C	Model name label(packing case) [C]
9	DUNTK4613ACZA	BM		E	AC adaptor (Change)[U,Y,A]
	DUNTK4613ACZB	BM	N	E	AC adaptor [C]
14	SSAKH0309CCZZ	AA		D	Vinyl bag (180x320mm) (Change)
15	TCADZ2299ACZZ	AF		D	Welcome sheet [Y,A,C]
28	TINSC2377ACZZ		N	D	Instruction book (Supplement) [C]
	TINSE2400ACZZ	AN	N	D	Instruction book (Operation) (Change)[U,Y]
29	TINSE2402ACZZ		N	D	Instruction book (Operation) (Change)[A]
	TINSE2401ACZZ		N	D	Instruction book (Operation) [C]
31	TLABZ2438ACZZ	AF	N	D	Packing include list label (Change)[U,Y]
33	TLABM2398ACZZ	AE		D	Chinese label [C]
70	TLABZ2430ACZZ	AD		D	Address label (Add)[Y]
	TLABM2318ACZZ	AE		D	Address label [C]
71	TLABM2311ACZZ	AG		D	Producer label [C]
72	TLABM2309ACZZ	AG		D	Commodity name label(large) [C]
73	TLABM2310ACZZ	AG		D	Destination label [C]
74	TLABM2314ACZZ	AG		D	Commodity name label(small) [C]

3 Packing material & Accessories(Difference with PC-A100U/Y/A)



4 Mother board(Difference with PC-A100U/Y/A)

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
22					Fuse (2.5A) (Not used)[F5]
53					Coil (10 μ H/4.0A) (Not used)[L1]
89	VCKYCY1EF104Z	AA		C	Capacitor (25WV 0.10 μ F) (Del)[C233]
115					Capacitor (25WV 0.10 μ F) (Add)[C550,551,552,553,554,555,556,557]
116	VHDBR050L40-1	AG		B	Diode (NSQ03A04) (Del)[D313]
118	VHDBR400D// -1	AC		B	Diode (RB050L-40) (Add)[D313]
119					Diode (RB400D) (Add)[D23]
138	VHi366266LTCP	DC	N	B	Diode (RB411D) (Del)[D23]
149	DUNTK4973ACZZ	BL		E	IC (CPU)(1.8V)(366266LTCP) (Change)[U305]
161	VHPPQ2TZ15U-1	AK		B	ROM (H8) (Add)[U23]
164	VHiNM2160B-TQ	BZ		B	Photo coupler (PQ2TZ15) (Change)[U5]
175	VHiAT49F040PL	AY		B	IC (NM2160B) (Change)[U14]
184	VRS-CY1JD000J	AA		C	IC (AT49F040) (Add)[U23]
188					Resistor (1/16W 0 Ω \pm 5%) (Not used)[R122,322]
190	VRS-CY1JD103J	AA		C	Resistor (1/16W 0 Ω \pm 5%) (Add)
191					Resistor (1/16W 1.0K Ω \pm 5%) (Del)[R50,51]
201	VRS-CY1JD202J	AA		C	Resistor (1/16W 10K Ω \pm 5%) (not used)[R49,130]
211	VRS-CY1JD272J	AA		C	Resistor (1/16W 10K Ω \pm 5%) (Add)[R186,187,563]
240					Resistor (1/16W 100K Ω \pm 1%) (Not used)[R348]
252					Resistor (1/16W 2.0K Ω \pm 5%) (Not used)[R13,14]
264					Resistor (1/16W 2.0K Ω \pm 5%) (Add)[R321]
304	PTUBF1007ACZZ	AG		C	Resistor (1/16W 2.7K Ω \pm 5%) (Add)[R190,191]
307	PSPA22395ACZZ	AF	N	C	Resistor (1/16W 102k Ω \pm 1%) (Not used)[R347]
308	VRS-TS2AD000J	AA		C	Resistor (1/4W 33m Ω \pm 5%) (Del)[R330,331]
309	RCILZ1014ACZZ	AK		C	Transistor (SI4410DY-T1) (Del)[Q301]
310	QFS-L9332QCZZ	AF		A	Insulation tube (Add)
311	VSSI4420DY// -1	AK		B	M/B spacer (Add)
901	CPWBZ1324ACU3		N	E	Resistor (1/10W 0 Ω \pm 5%) (Add)[D340,39,44]
					Coil (CDRH127-100) (Add)[L1]
					Fuse (UL/63V)(MMC3.15A) (Add)[F5]
					Transistor (SI4420DY) (Add)[Q301]
					(Unit)
					Mother board unit (Change)

DESTINATION TABLE

MODEL NAME	SELECTION CODE	COUNTRIES
PC-A150	U	SEC
	Y	SECL
	A	SRH
PC-A150C	C	CHINA

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