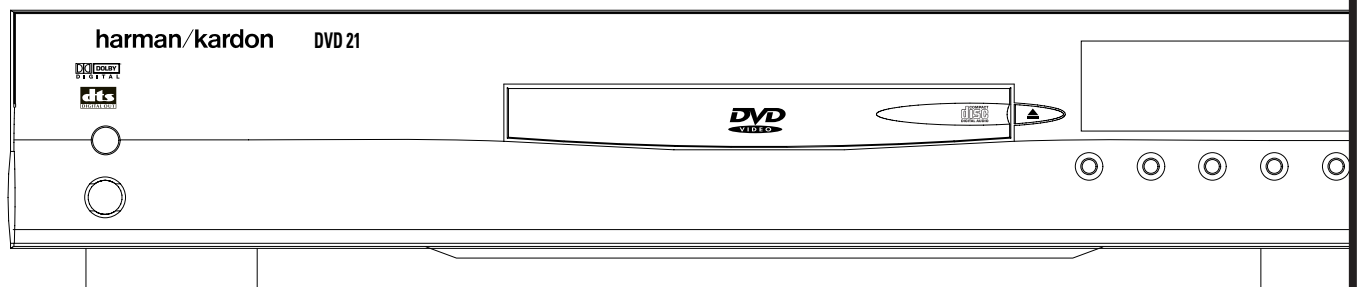


DVD 21 Digital Versatile Disc Player

SERVICE MANUAL



harman/kardon®

Power for the Digital Revolution™

Technical Specifications

Applicable Disc:	Disc formats: 5 inch (12 cm) or 3 inch (8 cm) DVD-Movie, Standard conforming DVD+RW, DVD+R, DVD-R and DVD-RW, VCD, CD, CD-R, MP3 or CD-RW discs, Regio code: DVD Movie disc with Code 2 or 0 only. DVD-Layers: Single Side/Single Layer, Single Side/Dual Layer, Dual Side/Single Layer, Dual Side/Dual Layer Audio formats: Linear PCM, MPEG, Dolby Digital or DTS
Video Signal System:	PAL/NTSC
Composite Video Output:	1 V p-p/75 Ohms, sync negative polarity
S Video Output:	Y/Luminance: 1 V p-p/75 Ohms, sync negative polarity C/Chrominance: 0.286 V p-p
Analog Audio Output:	2 Vrms max
Frequency Response:	DVD (Linear PCM): 2 Hz - 22 kHz +0/-0.5 dB (48 kHz sampling) 2 Hz - 44 kHz +0/-0.5 dB (96 kHz sampling) CD: 2 Hz - 20 kHz +0/-0.5 dB
Signal/Noise Ratio (SNR):	113 dB (A-weighted)
Dynamic Range:	DVD: 100 dB (18 Bit) / 105 dB (20 Bit) CD/DVD: 96 dB (16 Bit)
THD/1kHz:	DVD/CD: 0.0025 %
Wow & Flutter:	Below Measurable Limits
AC Power:	110 - 240 V/ 50 - 60 Hz
Power Consumption:	12 Watts (On)/20 Watts (Max)
Dimensions (WxHxD):	440 x 87 x 305 mm
Weight:	7 Kg

Depth measurement includes knobs and connectors.

Height measurement includes feet and chassis.

All specifications subject to change without notice.

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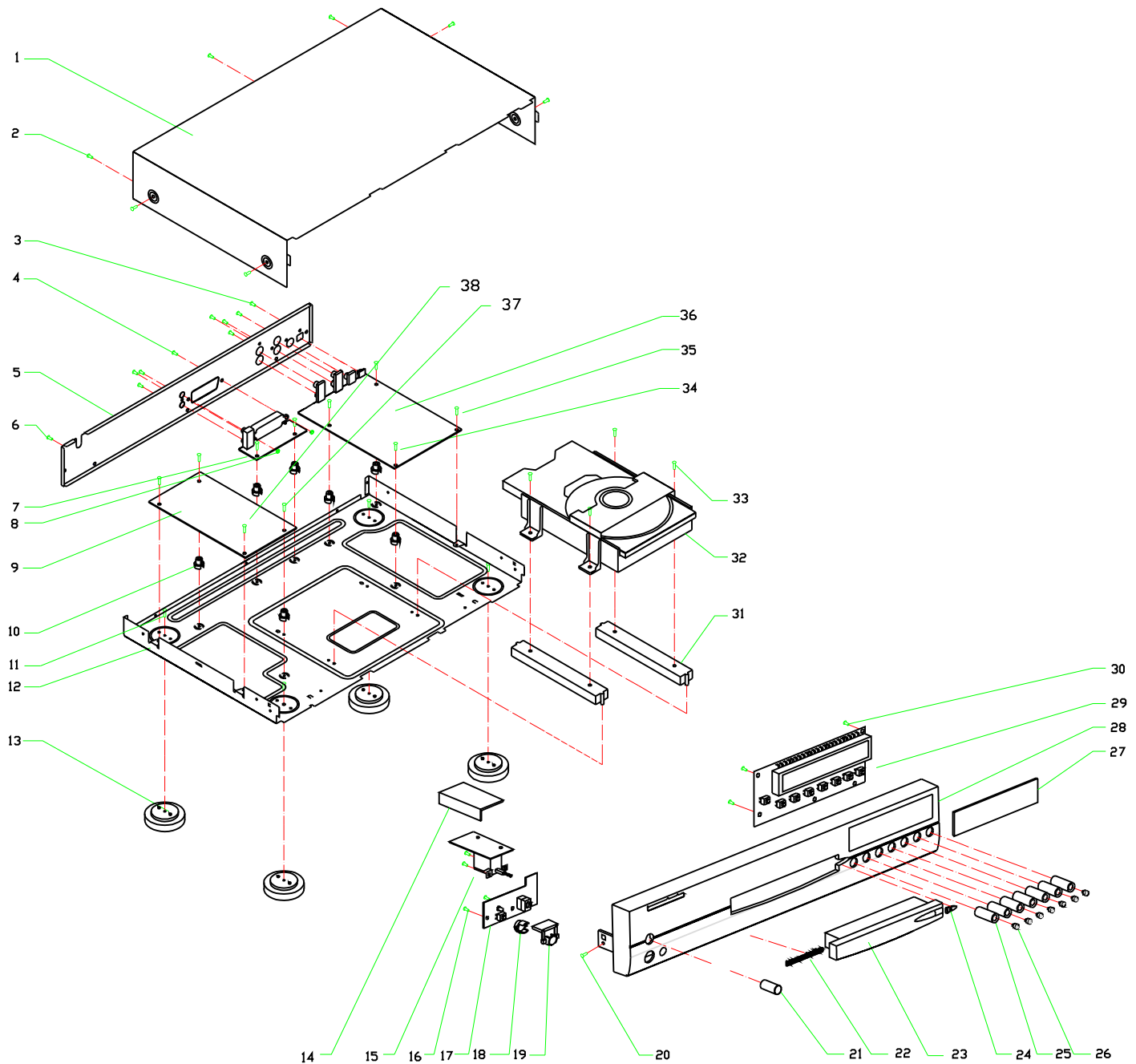
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Troubleshooting Guide

TROUBLESHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSE	SOLUTION
Unit does not turn on	• Main Power Switch 1 turned Off • No AC power	• Press in Main Power Switch 1 • Check AC power plug and make certain any switched outlet is turned on
Disc does not play	• Disc loaded improperly • Incorrect disc type • Invalid Region Code • Rating is above parental preset	• Load disc label-side up, note to align the disc with the guides and place it in its proper position. • Check to see that disc is CD, CD-R, CD-RW, VCD, DVD+RW, DVD+R, DVD-R and DVD-RW (standard conforming) or DVD-Movie; other types will not play • Use Region 2 disc only • Enter password to override or change rating settings, see page 18
No picture	• Intermittent connections • Wrong Input	• Check all video connections • Check input selection of TV or receiver.
No sound	• Intermittent connections • Incorrect digital audio selection • DVD disc is in fast or slow mode • Surround receiver not compatible with 96 kHz PCM audio	• Check all audio connections • Check digital audio settings • There is no audio playback on DVD discs during fast or slow modes • Use analog audio outputs.
Picture is distorted or jumps during fast forward or reverse play	• MPEG-2 decoding	• It is a normal artifact of DVD playback for pictures to jump or show some distortion during rapid play
Some remote buttons do not operate during DVD play, Prohibited symbol "⊘" appears (see below)	• Function not permitted at this time	• With most DVDs some functions are not permitted at certain times (e.g. Track Skip) or not at all (e.g. direct Audio track selection).
The OSD menu is in a foreign language	• Incorrect Display language	• Change Display language selection, see page 19
"⊘" Symbol Appears	• Requested function not available at this time	• Certain functions may be disabled by the DVD itself during passages of a disc
Picture is displayed in the wrong Aspect Ratio	• Incorrect match of aspect ratio settings to disc • Unit is not connected to TV with a Scart connector.	• Change Aspect Ratio settings, see page 17 • To make TVs turn automatically to 16:9 mode they must be conneted to the player via Scart.
Remote control inoperative	• Weak batteries • Sensor is blocked	• Change both batteries • Clear path to sensor or use remote sensor
Disc will not copy to VCR	• Macrovision protection	• Many DVDs are encoded with Macrovision to prevent copying to VCR

DVD21 EXPLODED VIEW



no.	part name & model	quantity	remark	no.	part name & model	quantity	remark
1	cabinet , top	1		20	screw KBITD M3X6	2	
2	screw PWBTTD M3X8	6		21	knob,power	1	
3	screw PAHD M3X8	4		22	nameplate,harman/kardon	1	
4	screw PwMD M3X10	4		23	door ,	1	
5	panel,rear	1		24	knob,open	1	
6	screw PwMTTD M3X6	3		25	sleeve,knob	7	
7	output pcb ass'y	1		26	knob	7	
8	nut M3x 3	2		27	limpidity,fluorescence	1	
9	power pcb ass'y	1		28	panel,front	1	
10	holder,pcb	7		29	panel pcb ass'y	1	
11	screw RTHD M4X8	4		30	screw PAHC M2.5X6	5	
12	chassis, bottom	1		31	underlay,loader	2	
13	foot	4		32	loader	1	
14	insulation	1		33	screw PwMTTC M3X12	4	
15	on-off pcb ass'y	1		34	screw PwMC M3X13	3	
16	screw PAHC M3X8	4		35	screw PwMTTC M3X6	1	
17	panel pcb ass'y,B	1		36	main pcb ass'y	1	
18	limpidity,remote control	1		37	screw PwMTTC M3X18	2	
19	knob,stand by	1		38	screw PwMTTC M3X6	2	

DVD 21 Component List

No.	Parts No.	Description & Model Basic Data	QTY	Position No.	Remark
		<u>Metal Parts</u>			
1	WLD8.031.076	Chassis	1		
2	WLD8.404.042	Top cover	1		
3	WLD8.610.086	Rear panel	1		
4	WLD8.809.002	"harman/kardon" badge	1		
5		Fastening parts			Additional attached
		<u>Plastic Parts</u>			
6	WLD6.116.087	Front panel	1		Antiflaming material
7	WLD8.085.005-1	Foot	4		Antiflaming material
8	WLD8.337.024	Power button	1		Antiflaming material
9	WLD8.082.021	Door	1		Antiflaming material
10	WLD7.370.001	Filter for VFD	1		Antiflaming material
11	WLD8.085.007	Foot pad	4		Antiflaming material
12	WLD8.634.001	Screw jacket	4		Antiflaming material
13	WLD7.085.007	Power switch insulation strip	1		Antiflaming material
14	WLD8.088.007	VFD cushion	1		Antiflaming material
15	WLD8.088.008	VFD cushion	1		Antiflaming material
16	WLD8.070.006	RC sensor support	2		Antiflaming material
17	WLD7.370.002	RC sensor lens	1		Antiflaming material
18	WLD8.605.013~014	RC case	1		Antiflaming material
19	WLD8.605.015	Cover for battery case	1		Antiflaming material
20	WLD7.683.009	RC conductive rubber	1		Antiflaming material
21	WLD8.804.009	RC indication plate	2		Antiflaming material
22	WLD7.370.003	Lens on front panel	1		Antiflaming material
23	WLD8.849.001	Glue for lens	1		Antiflaming material
24	WLD8.849.003	Insulation paper	1	Antiflaming material	110 X 25mm
25	WLD8.079.008-1	Plastic bracket for PCB	2	Antiflaming material	7 X 12.8mm (power supply board)
26	WLD8.070.030	Plastic bracket for PCB	5	Antiflaming material	7 X 8mm (main board & output board)
27	WLD8.070.031	Mechanism support	2	Antiflaming material	6 mm height
				Page 1	Total 4 pages
				Page 1	

DVD 21 Component List

No.	Parts No.	Description & Model Basic Data	QTY	Position No.	Remark
1		Binding wire aluminum slice	1	To cover ϕ 3X40 black pyrocondensation tube	
2		Black pyro condensation tube	1	ϕ 3X40	
		<u>Complete Part</u>			
4	WLD5.018.023	Panasonic single disc mechanism DU-5	1	The door height is the same as that of DVP-560 Mechanism	With platen
5		Power switch (fixed space between holes: 20) PS4E-A-040	1	SW1	
		<u>Cable</u>			
6		4-core 350 length single 2.54 spacing	1	Connect between power supply board & big front	Self-made
7		10-core 380 length double, one side spacing 2.0 and the other 2.54	1	Connect between power supply board & main board	Same direction and self-made
8		10-core 160 length single 2.0 spacing	1	Connect between front panel & main board	Self-made
9		7-core 310 length with two sides dipped in tin	1	Connect between big & small front panels	Self-made
10		50-core 140 length double 0.5 spacing flat cable	1	Connect between mechanism & main board	Purchased
11		22-core 60 length 1.0 spacing flat cable	1	Connect between main board & output board	Purchased
12		End clip length 70mm power cord with plug (round double pins)	1	Power supply board (white VH connector)	CE approved
13		2-core 300 length double VH-3Y (antiflaming) plugs (double insulated lines)	1	The connection side VH of switch board & power supply board JP1 is orange	Same direction and self-made
14		2-core 110 length double 2.0 spacing, one side is PH-2Y-A, the other one is PH-2A	1	Connect between mechanism & main board, PH-2Y-A side connected to mechanism	Gray or black
		<u>Packing</u>			
15	WLD8.865.166	Carton box	1		
16	WLD8.870.029	Polyfoam pad	2		
17	WLD8.840.043	Plastic bag AV cords	1		
18	WLD8.840.044	Plastic bag for OM	2		
19	WLD8.840.045	Packing bag player	1		
20	WLD8.870.029-1	Poly foam pad	1		
		<u>Accessories</u>			
21	WLD8.810.111	OM SM109	1		
22		Product warrant card	1		
23		Certificate of eligibility	1		
24		AV cords	3		
25		S-Video cord	1		
26		5# batteries	2		
				Page 2	Total 4 pages
				Page 2	

DVD 21 Component List

No.	Parts No.	Description & Model Basic Data	QTY	Position No.	Remark
1		Packing list	1		
2		RC transmission line	1		
		<u>Parts</u>			
3	WLD6.672.316	Main board assy 939C	1		Double-layer PCB
4	WLD6.672.228	Output board assy 736C	1		Double-layer PCB
5	WLD6.672.317	Big panel assy 999C	1		Single-layer PCB
6	WLD6.672.318	Small panel assy 998C	1		Single-layer PCB
7	WLD6.672.324	Power supply board assy 1040C	1		Single-layer PCB
8	WLD6.672.230	RC board 738C	1	Same as EU DVD 25	Single-layer PCB
9	WLD6.672.229-2	Remote control board assy 787C-2			Single-layer PCB
		<u>PCB</u> <u>Antiflaming material</u>			
10	WLD7.820.939C	Main board PCB 939C	1	UL approved	Double-layer PCB 166X116
11	WLD7.820.736C	Output board PCB 736C	1	UL approved	Double-layer PCB 87X41
12	WLD7.820.787C-2	Power switch board PCB 787C-2	1	UL approved	Single-layer PCB 55X27
13	WLD7.820.999C	Big panel PCB 999C	1	UL approved	139X55
14	WLD7.820.998C-1	Small panel PCB 998C	1	UL approved	Single-layer PCB 55X26
15	WLD7.820.1040C	Power supply board PCB 1040C	1	UL approved	Single-layer PCB 95X182
16	WLD7.820.738C	RC board PCB 738C	1	UL approved	175X50
		<u>Assistant Material</u>			
17		EAOS63 soldering tin bar			
18		SH-18 scaling powder			
19		SH-08 thinner			
20		BB1.2 soldering tin thread			
21		Colophony			
22		Plastic glue bar			
23		Double-faced adhesive tape			
24		Seal adhesive tape			
25		Transparence adhesive tape			
				Page 3	Total 4 pages
				Page 3	

DVD 21 Component List for Fastening Pieces (Bolt)

No.	Parts No.	Description & Model Basic Data	QTY	Position No.	Remark
1	SJ2818-87 ↑ ↓ SJ2844-87	PAHC M2.5×6	5	Fix PCB to front	
2		PWBTTT M3×6	2	Fix front panel to	
3		KBTTO M3×6	2	Fix front panel to	
4		PWMTTC M3×13	3	Fix main board	
5		PWBTTT M3×6	1	Fix main board	
6		PWMTTC M3×18	2	Fix power supply	
7		PWBTTT M3×6	2	Fix power supply	
8		PWBTTT M3×12	4	Fix mechanism	
9		RBTTT M3×8	1	Fix IC to radiator	
10		PAHO M3×8	1	Fix optical output	
11		PWBTTT M3×6	3	Fix rear panel to	
12		PAHO M3×8	3	Fix coaxial jack	
13		RTHO M4×8	4	Fix foot to bottom	
14		PWBTTT M3×8	9	Fix top cover	
15		PAHC M3×6	4	Fix power switch	
16		PWMTTC M3×13	2	Fix output board	
17		PWMO M3×10	2	Fix SCART	
18		Nut M3×3	2	Fix SCART	
19		PAHO M3×8	1	Fix output board	
				Page 4	Total 4 pages
				Page 4	

DVD 21 Component List for Main Board (939C)

		<u>Resistor</u>			
				R1 R3 R54 R59 RR15	
				RR59FB8FB9FB12FB1	
1	WLD7.075.0	0 Ω (SMD0603)	15	R150 R151 R152 R153	
2	WLD7.075.0	0 Ω (SMD1206)	4	L3 L10 LL5 L7	
3	WLD7.075.100	10 Ω (SMD0603)	1	R46	
4	WLD7.075.220	22 Ω (SMD0603)	10	R5 R34 R41 R49 R50	
5	WLD7.075.330	33 Ω (SMD0603)	12	RR79 RR80 RR81	
6	WLD7.075.750	75 Ω (1%, SMD0603)	11	R19 R36 R43 R44 R45	
7	WLD7.075.101	100 Ω (SMD0603)	1	R136 R137	
8	WLD7.075.111	110 Ω (SMD0603)	2	RR18	
9	WLD7.075.331	330 Ω (SMD0603)	2	R35 R37	
10	WLD7.075.471	470 Ω (SMD0603)	2	R162R170	
11	WLD7.075.511	510 Ω (SMD0603)	2	R48 R52	
12	WLD7.075.681	680 Ω (SMD0603)	2	R140 R141	
13	WLD7.075.102	1K Ω (1%, SMD0603)	6	R165 R173	
14	WLD7.075.112	1.10K Ω 1%, SMD0603	1	R42	
15	WLD7.075.152	1.5K Ω (1%, SMD0603)	1	R47	
16	WLD7.075.182	1.8K Ω (SMD0603)	2	R9	
17	WLD7.075.332	3.3K Ω (SMD0603)	4	R188 R236	
18		4.7K Ω (SMD0603)	7	R15 R127 R155 R156	
19	WLD7.075.622	6.2K Ω (SMD0603)	1	R167R169R178R231	
20	WLD7.075.752	7.5K Ω (SMD0603)	4	R219 RR22 RR24	
				R64	
				R185 R233 RR30 RR31	

The parts with underline should be installed on the back of circuit board.

				Page 1	Total 5 pages
				Page 5	

DVD 21 Component List for Main Board (939C)

No.	Parts No.	Description & Model Basic Data	QTY	Position No.	Remark
Resistor					
1	WLD7.075.822	8.2K Ω (SMD0603)	2	RR58 RR60	
2	WLD7.075.103	10K Ω (SMD0603)	19	R6 R7 R8 R61 R17 R135R161R177R190R RR20RR21RR38RR4 RR47RR51RR57RR9	
				RR52 RR56 RR61 RR72 RR76 RR77	
3	WLD7.075.153	15K Ω (SMD0603)	7		
4	WLD7.075.223	22K Ω (SMD0603)	2	RR25 RR48	
5	WLD7.075.273	27K Ω (SMD0603)	2	RR16 RR17	
6	WLD7.075.333	33K Ω (SMD0603)	1	RR49	
7	WLD7.075.473	47K Ω (SMD0603)	25	RR5 RR6 RR7 RR8 RR10 RR12 RR13 RR34 RR35 RR36 RR42 RR44 RR62 RR66 RR68 RR69 RR71 RR73 RR74	
8	WLD7.075.563	56K Ω (SMD0603)	1	RR23	
9	WLD7.075.683	68K Ω (SMD0603)	1	RR50	
10	WLD7.075.823	82K Ω (SMD0603)	1	R63	
11	WLD7.075.104	100K Ω (SMD0603)	3	R57 RR64 RR65	
12	WLD7.075.1 M Ω	1M Ω (SMD0603)	2	RR54 RR19	
13	WLD7.075.4.7M Ω	4.7M Ω (SMD0603)	1	RR78	
14		Resistor line 33 $\Omega \times 4$	8	RN1 RN2 RN3 RN4 RN5 RN6 RN7 RN8	
Capacitor					
15	WLD7.075.5C	5PF(SMD0603)	2	CC7 CC9	High frequency
16	WLD7.075.20C	20PF(SMD0603)	10	C51C52C53C55C58 C61 C88C154 C176C179	High frequency
17	WLD7.075.22C	22PF(5%,SMD0603)	4	C72 C73 C107 C108	High frequency
18	WLD7.075.47C	47PF(SMD0603)	5	C183 CC35 C90 C91C C152	High frequency
19	WLD7.075.82C	82PF(SMD0603)	1	CC63	High frequency
20	WLD7.075.101C	100PF(SMD0603)	11	C56 C59 C62 C64 C65 C54C57C60 C148 C217C328	High frequency
21	WLD7.075.221C	220PF(SMD0603)	5	C149 C150 C151C155 CC28	High frequency
The parts with underline should be installed on the back of circuit board.					
				Page 2	Total 5 pages
				Page 6	

DVD 21 Component List for Main Board (939C)

No.	Parts No.	Description & Model Basic Data	QTY	Position No.	Remark
1	WLD7.075.331C	330PF(SMD0603)	3	C153 <u>CC49</u> <u>CC47</u>	High frequency
2	WLD7.075.681C	680PF(SMD0603)	5	C220 C329 CC45CC48	High frequency
3	WLD7.075.821C	820PF(SMD0603)	1	CC44	Intermediate frequency
4	WLD7.075.102C	102(SMD0603)	8	C220 C329 CC45 CC48 CC50 CC52	Intermediate frequency
5	WLD7.075.222C	222 (SMD0603)	2	CC42 CC43	Intermediate frequency
6	WLD7.075.332C	332(SMD0603)	1	CC14	Intermediate frequency
7	WLD7.075.472C	472(SMD0603)	1	CC62	
8	WLD7.075.682C	682(SMD0603)	1	CC40	Intermediate frequency
9	WLD7.075.822C	822(SMD0603)	1	CC10	
10	WLD7.075.103C	103(SMD0603)	2	CC22 CC26	Intermediate frequency
11	WLD7.075.153C	153(SMD0603)	1	CC33	
12	WLD7.075.3393C	393(SMD0603)	1	CC11	Intermediate
13	WLD7.075.224C	224(SMD0603)	1	CC34	Low frequency
14	WLD7.075.104C	104(SMD0603)	111	C7 C8 <u>C9</u> <u>C10</u> <u>C11</u> <u>C12</u> <u>C13</u> <u>C15</u> <u>C16</u> <u>C17</u> <u>C18</u> <u>C19</u> <u>C20</u> <u>C21</u> <u>C22</u> <u>C23</u> <u>C24</u> <u>C25</u> <u>C26</u> <u>C27</u> <u>C30</u> <u>C31</u> <u>C33</u> <u>C34</u> <u>C35</u> <u>C36</u> <u>C38</u> <u>C39</u> <u>C40</u> <u>C41</u> <u>C42</u> <u>C43</u> <u>C44</u> <u>C46</u> <u>C47</u> <u>C48</u> <u>C49</u> <u>C50</u> <u>C63</u> <u>C66</u> <u>C67</u> <u>C68</u> <u>C69</u> <u>C70</u> <u>C71</u> <u>C74</u> <u>C77</u> <u>C78</u> <u>C79</u> <u>C80</u> <u>C83</u> <u>C84</u> <u>C86</u> <u>C92</u> <u>C93</u> <u>C96</u> <u>C98</u> <u>C103</u> <u>C105</u> <u>C106</u> <u>C123</u> <u>C129</u> <u>C171</u> <u>C172</u> <u>C174</u> <u>C175</u> <u>C178</u> <u>C185</u> <u>C186</u> <u>C211</u> <u>C325</u> <u>CC1</u> <u>CC2</u> <u>CC3</u> <u>CC5</u> <u>CC6</u> <u>CC8</u> <u>CC12</u> <u>CC13</u> <u>CC16</u> <u>CC17</u> <u>CC18</u> <u>CC19</u> <u>CC20</u> <u>CC21</u> <u>CC23</u> <u>CC27</u> <u>CC29</u> <u>CC30</u> <u>CC31</u> <u>CC32</u> <u>CC36</u> <u>CC38</u> <u>CC39</u> <u>CC41</u> <u>CC46</u> <u>CC51</u> <u>CC53</u> <u>CC56</u> <u>CC57</u> <u>CC58</u> <u>CC59</u> <u>CC61</u>	Low frequency
The parts with underline should be installed on the back of circuit board.					
				Page 3	Total 5 pages
				Page 7	

DVD 21 Component List for Main Board (939C)

No.	Parts No.	Description & Model Basic Data	QTY	Position No.	Re-mark
1	WLD7.075.10UF/16V	10UF/16V	6	C75 C76 C89 C102 C104 C28	
2	WLD7.075.47UF/16V	47UF/16V	6	C202 C214 C205 C215 CC25 CC66	
				C32 C37 C45 C87 C163	
3	WLD7.075.100UF/10V	100UF/10V	13	CC65 CC64 C164 C165	
4	WLD7.075.220UF/25V	220UF/10V	4	CC4 CC67 C99 C100	
5	WLD7.075.220UF/25V	220UF/25V	2	C85 C95	
6	WLD7.075.470UF/10V	470UF/10V	4	C14 C81 C82 C97	
7	WLD7.075.220UF/16V	220UF/16V	4	C94 C140 C142 C180	
		Diode			
8	WLD5.409.IN4148	IN4148	15	D1 D3 D4 D5 D6 D7 D8	SMD
		Triode			
9	WLD5.419.DTC343TK	DTC343TK (SMT3)	3	Q13Q15 Q4	
10	WLD5.419.3906	3906 (SMD)	2	Q6 Q7	
		IC			
11	WLD5.449. 16Mbit	16Mbit SDRAM(-7ns) (4banks×512K×16bit) HY57V161610D TC-7	2	U2 U3	SMD
12	WLD5.449. NDV8603	NDV8603VWAT	1	U5	SMD
13	WLD5.449.74VHCT573A	74VHCT573A	2	U6 U7	SMD
14	WLD5.449.HY29F21U8	HY29F800TG-90 or	1	U8	SMD
	WLD5.449.HY29F21U9	MX29F800T	1	U9	SMD
15	WLD5.449. 018EZ01	SHARP 018EZ01	1	U10	SMD
16	WLD5.449. BA033	252)	1	U11	SMD
17	WLD5.449. LM809M3	LM809M3-2.63	1	U12	SMD
18	WLD5.449. ATMEL93C46	ATMEL93C46	1	U13	SMD
19	WLD5.449. 4558	4558	1	U31	SMD
20	WLD5.449. WM8716	WM8706	1	U15	SMD
21 1	WLD5.449. 79L05	79L05	1	U22	DIP
22 3	WLD5.449. 78L05	78L05	2	U16 U21	DIP
23					
				Page 4	Total 5 pages
				Page 8	

DVD 21 Component List for Main Board (939C)

No.	Parts No.	Description & Model Basic Data	QTY	Position No.	Remark
1	WLD5.449. LMH6655MA	LMH6654A	1	U4	
2	WLD5.449. MN102H60GHE	MN102H60GHE	1	UU2	Appointed
3	WLD5.449. MN103S26E	MN103S26E	1	UU3	
		<u>Oscillator</u>			
4	WLD5.557.27	27MHz (Basic freq.)	1	Y1	Super mini
5	WLD5.557.16.9344	16.9344MHz	1	YY1	
		<u>Inductor</u>			
6	WLD5.757.1	SMD1210)	3	L4 L5 L6	Ceramics
7	WLD5.757.2.2	2.2UH (Coiling, SMD1210)	1	L1	Ceramics
8	WLD5.757.2.2	2.2UH (SMD1206)	1	L8	
9	WLD5.757.4.7	4.7UH (SMD1206)	1	L9	
		<u>Magnetic Bead</u>			
10	WLD5.777.50	(50 Ω)	3	L2 LL1 L11	
11	WLD5.777.50	50 Ω (SMD0603)	16	FB1 FB5 FB6 FB7 FB14 FB15 FB16 FB17 FB18 FB19 FB20 LL9 LL4 FB10 FB11 R60	
12	WLD5.777.50	50 Ω (SMD0805)	6	LL2 LL3 LL6 LL7 LL8 LL10	
		<u>Connector</u>			
13	WLD6.609.10A	PH-10A	1	J1	
14	WLD6.609.10A	PH-10A	1	J6	
15	WLD6.609.2A	PH-2A	1	JJ3	
16	WLD6.609.50P	50PIN0.5	1	CCN1 (interface	SMP vertical
17	WLD6.609.22P	22P 1.0 two lines	1	J12	Vertical
18	WLD6.609. GP1FA550TZ	SHARP GP1FA550TZ	1	J7	
19	WLD6.609.6G	AV1-8.4-6G (Orange)	1	J8	Gilded
20	WLD6.609.1G	AV2-8.4-1G (Upper white, lower red)	1	J10	Gilded
21	WLD6.609.CS-08	Video & S-Video CS-08 (Yellow)	1	J14	Gilded
22	WLD7.820.939C	PCB	1	939C	Blank
				Page 5	Total 5 pages
				Page 9	

DVD 21 Component List for Power Supply Board (1040C)

No.	Parts No.	Description & Model Basic Data	QTY	Position No.	Remark
Resistor					
1.	WLD5.630.1	RT-1W-1 Ω	1	R18	
2.	WLD5.630.100	Jumper wire	1	R11	
3.	WLD5.630.101	RT-1/6W-100 Ω	1	R3	
4.	WLD5.630.221	RT-1/6W-220 Ω	1	R102	
5.	WLD5.630.331	RT-1/6W-330 Ω	3	R2 R6 R14	
6.	WLD5.630.471	RT-1/6W-470 Ω	1	R9	
7.	WLD5.630.102	RT-1/6W-1K Ω	1	R12	
8.	WLD5.630.512	RT-1/6W-5.1K Ω	5	R20 R5 R7 R8 R10	
9.	WLD5.630.103	RT-1/6W-10K Ω	1	R4	
10.	WLD5.630.103	RT-1/4W-10K Ω	1	R19	
11.	WLD5.630.683	RT-1W-68K Ω	1	R16	
12.	WLD5.630.134	RT-2W-130K Ω	1	R17	
13.	WLD5.630.364	RT-1W-360K Ω	1	R1	
14.	WLD5.652. FNR10K471	FNR10K471	1	RV1	Varistor
15.	WLD5.630.0.33	0.33 Ω	1	R101	Fuse resistance
16.	WLD5.630.4.7	Fuse resistance 1/4W-4.7 Ω	1	RF1	Fuse resistance
Capacitor					
17.	WLD5.610.471	CT-50V-471	3	C35 C36 C37	Monolith
18.	WLD5.619.471	471/AC400V	2	C3 C4	Y type
19.	WLD5.619.102	High voltage 102/AC400V	2	C5 C7	Y type
20.	WLD5.610.472	CT-100V-472	1	C20	Terylene
21.	WLD5.610.682	CT-100V-682	2	C21 C23	Terylene
22.	WLD5.610.103	CT4-100V-103	4	C22 C24 C27 C28	
23.	WLD5.619.103	High voltage 103/1KV	1	C26	
24.	WLD5.610.104	CT4-50V-104	6	C31 C32 C34 C38 C40 C42	Monolith
25.	WLD5.619.104	104/AC275V	2	C1 C2	
26.	WLD5.613.33UF/50V	CD-50V-33uF	2	C30 C13	$\Phi 6 \times 12$
27.	WLD5.613.47UF/16V	CD-16V-47uF	1	C39	
				Page 1	Total 3 pages
				Page 10	

DVD 21 Component List for Power Supply Board (1040C)

No.	Parts No.	Description & Model Basic Data	QTY	Position No.	Remark
28	WLD5.613.47UF/50V	CD-50V-47uF	1	C14	Φ8×13
29	WLD5.613.47UF/400V	CD295-400V-47uF	1	C6	JF
30	WLD5.613.220UF/16V	CD-16V-220uF	6	C15C16 C18 C29	Φ6×12
				C45 C8	
31	WLD5.613.470UF/16V	CD-16V-470uF	2	C11 C44	Φ8×13
32	WLD5.613.1000UF/50V	CD-16V-1000uF	3	C12 C9 C10	Φ10×17 105° C
33					
34		NC	1	C25	No need
		Inductor			
35	WLD5.777.0.6	Magnetic bead 0.6uH	1	L3	
36	WLD5.757.1.2	Magnetic bead 1.2uH	1	L5	
37	WLD5.757.100	L630-100 (10uH)	1	L8	Filter inductor
38	WLD5.757.20	20uH filter inductor	2	L9 L11	⊥ shaped Hangxin
39	WLD5.757.33	inductor	2	L6 L7	DIP
40	WLD5.757.50mH	LCL ET20-010 (50mH)	1	L10	Common mode inductor
		Tube, Bridge			
41	WLD5.409.FR107	FR107	5	D1 D3 D4 D7 D8	
42	WLD5.409. FR204	FR204	1	D6	
43	WLD5.409. IN5822	IN5822	1	D5	
44	WLD5.409. IN5392	IN5392 (IN5393)	4	D9 D10 D11 IC6	IC6 1 pin
45	WLD5.409. IN4007	IN4007	1	D2	
46	WLD5.409. IN4148	IN4148	1	D12	
47	WLD5.409. KBP06	Bridge KBP06	1	DF1	
		IC			
	WLD5.449. KA431	KA431	1	IC3	
48	WLD5.449. L7809	PC817	1	IC2	
49	WLD5.449 .L7808	UC3842B	1	IC1	
				Page 2	Total 3 pages
				Page 11	

DVD 21 Component List for Power Supply Board (1040C)

No.	Parts No.	Description & Model Basic Data	QTY	Position No.	Remark
		MOS Tube			
50	WLD5.419.IRFBE30	IRFBE30	1	BG1	
		Linker			
51	WLD6.609.10A	TJC3-10A	1	CN1 (-24V empty)	
52	WLD6.609.4A	TJC3-4A	1	CN2	
		pins (vertical)	2	JP1 (orange) JP2	
		Others			
53		Fuse T1A /250V	1	F1	
54		Fuse Holder	1		
55	WLD4.704.049	ER2803	1	TR1	Fulei “HK1”
56		Radiator SR008	1	With BG1	
57		Earthing strip	4		
58		J line	5	J1~J4 R13	
		J line	2	IC4 between one pin	
		J line	2	L1 bridge joint	
60	WLD7.820.1040C	PCB (Single-layer)		1040C (Ver1.0)	UL approved

DVD 21 Component List for Power Switch Board (787C-2)

1		Power switch (fixed space between holes: 20) PS4E-A-040	1	1SW1	Huajie
2		VH three hole two pins (horizontal)	1	1JP1 (white)	
3		High voltage 103/AC250	1	C19	
4	WLD7.820.787C-2	PCB (Single-layer)	1	787C-2	approved Blanck
				Page 3	Total 3 pages
					Page 12

DVD 21 Component List for Big Panel (999C)

No.	Parts No.	Description & Model Basic Data	QTY	Position No.	Remark
		Resistor, Capacitor			
1.	WLD4.704.201	RT-1/6W-200 Ω	1	R3	
2.	WLD7.075.561	RT-1/6W-560 Ω	1	R1	
3.	WLD7.075.102	RT-1/6W-1K Ω	2	R13, R14	
4.	WLD7.075.472	RT-1/6W-4.7K Ω	2	R19, R20	With PT6318
5.		RT-1/6W-10K Ω	2	R19, R20	With PT6311
6.	WLD7.075.103	RT-1/6W-10K Ω	2	R2, R12	
7.	WLD7.075.330	RT-1/6W-33K Ω	9	R4, R5, R6, R7, R8, R9,	
8.	WLD7.075.390	RT-1/6W-39K Ω	1	R15	
9.	WLD7.075.470	RT-1/6W-47K Ω	1	R22	
10.		CD-10V-47UF	1	C5	insert)
11.		CT4-50V-104	4	C1, C2, C6, C7	
12.	WLD5.409.5.6V	5.6V	1	ZD1	
13.	WLD5.409.PT6318	PT6318 or PT6311	1	U1	
14.	WLD5.409.IN4148	Diode 1N4148	3	D1, D2, D3	
15.	WLD5.409.8050	Triode 8050	2	Q1	Horizontal insert
16.	WLD7.350.025	DVD25 Display	1	VFD1	
17.	WLD6.618.001	Touch switch 6 $\times$ 6	8	S2, S3, S4, S5, S6, S7, S8, S9	
18.		Short connection	26	J1—J28, J30-J32	No J29
19.	WLD7.820.999C	Single-layer PCB	1	999C	
20.					

DVD 21 Component List for Small Panel (998C)

21.		Receiver HS0038B	1	IR1	
22.	WLD7.075.101	RT-1/6W-100 Ω	1	R19	
23.	WLD5.610.104/50V	CT4-50V-104	1	C9	
24.	WLD5.610.47UF/10V	CD-10V-47UF	1	C8	
25.	WLD6.618.001	Touch switch 6 $\times$ 6	1	S1	
26.		5mm short connection	1	J1	

DVD 21 Component List for Small Panel (998C)

No.	Parts No.	Description & Model Basic Data	QTY	Position No.	Remark
1		Double-color flaring diode $\phi 3$ (red & green)	1	LED1	Three pins
2	WLD7.820.998C	Single-layer PCB	1	998C	Blank

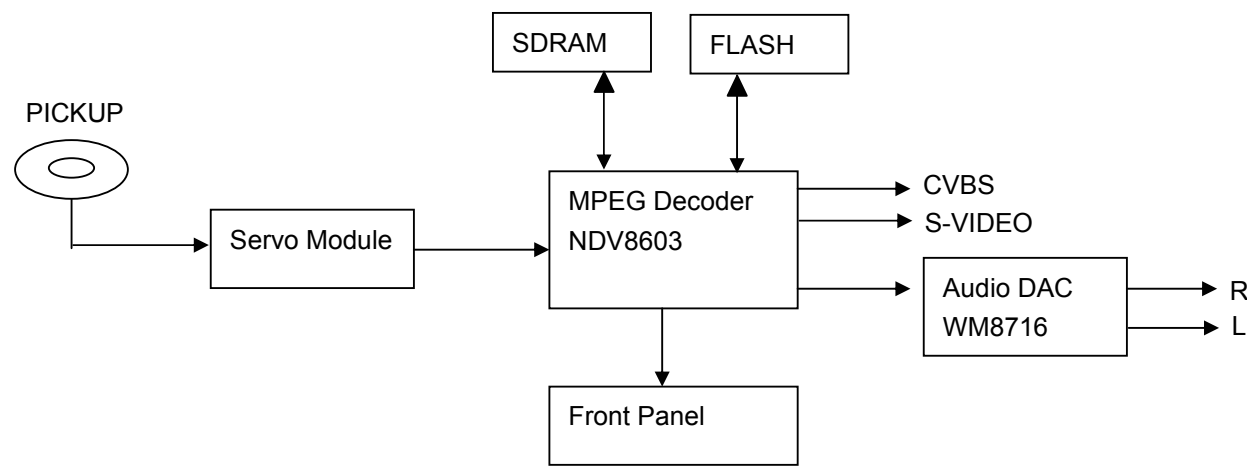
DVD 21 Component List for Output Board (736C)

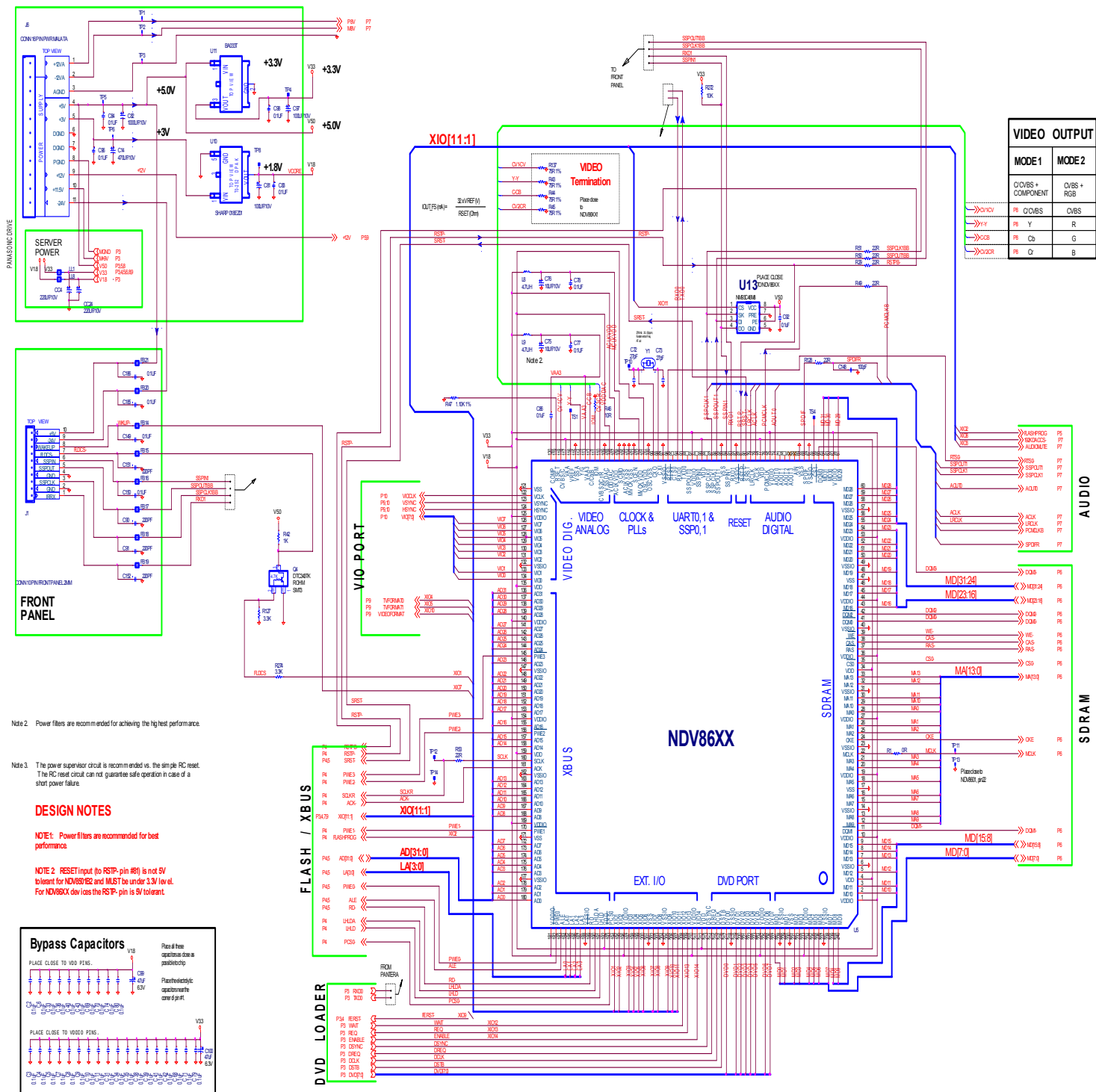
No.	Parts No.	Description & Model Basic Data	QTY	Position No.	Remark
3	WLD7.075.151	RT-1/4W-150 Ω	1	R9	
4	WLD7.075.0	0 Ω (SMD0603)	1	FB7 FB8	
5	WLD7.075.271	270 Ω (SMD0603)	1	R14	
6	WLD7.075.391	390 Ω (SMD0603)	1	R13	
7	WLD7.075.102	RT-1/4W-1K	2	R3 R6	
8	WLD7.075.332	3.3K (SMD0603)	5	R1 R2 R4 R5 R7	
9	WLD7.075.472	4.7K (SMD0603)	2	R12	
10	WLD7.075.682	6.8K (SMD0603)	1	R15	
11	WLD7.075.103	10K (SMD0603)	2	R10 R11	
		Capacitor			
12	WLD7.075.20C	20PF (SMD0603)	6	C4 C5 C6 C7 C8 C9	
13	WLD7.075.104C	104 (SMD0603)	3	C1 C2 C3	
14	WLD7.075.47UF/16V	47UF/16V	1	C12	
		Diode			
15	WLD5.409.IN4148	IN4148	1	D1	
		Triode			
16	WLD5.419.DTC343TK	DTC343TK (SMT3)	3	Q1 Q2 Q3	
17	WLD5.419.DTA114YKA	DTA114YKA (SMT3)	1	Q4	
		Magnetic Bead			
18	WLD5.777.50	50 Ω (SMD0603)	6	FB1 FB2 FB3 FB4 FB5	
19		PC817	1	U1	

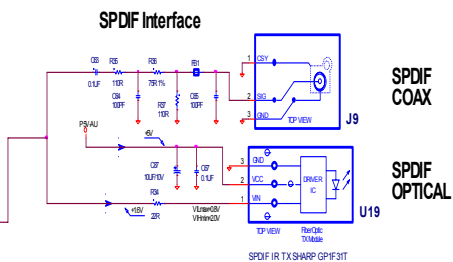
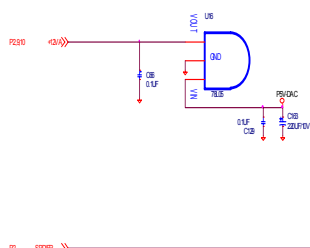
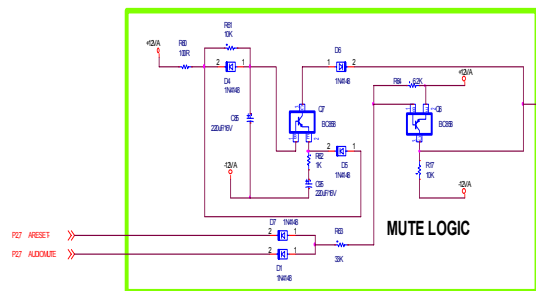
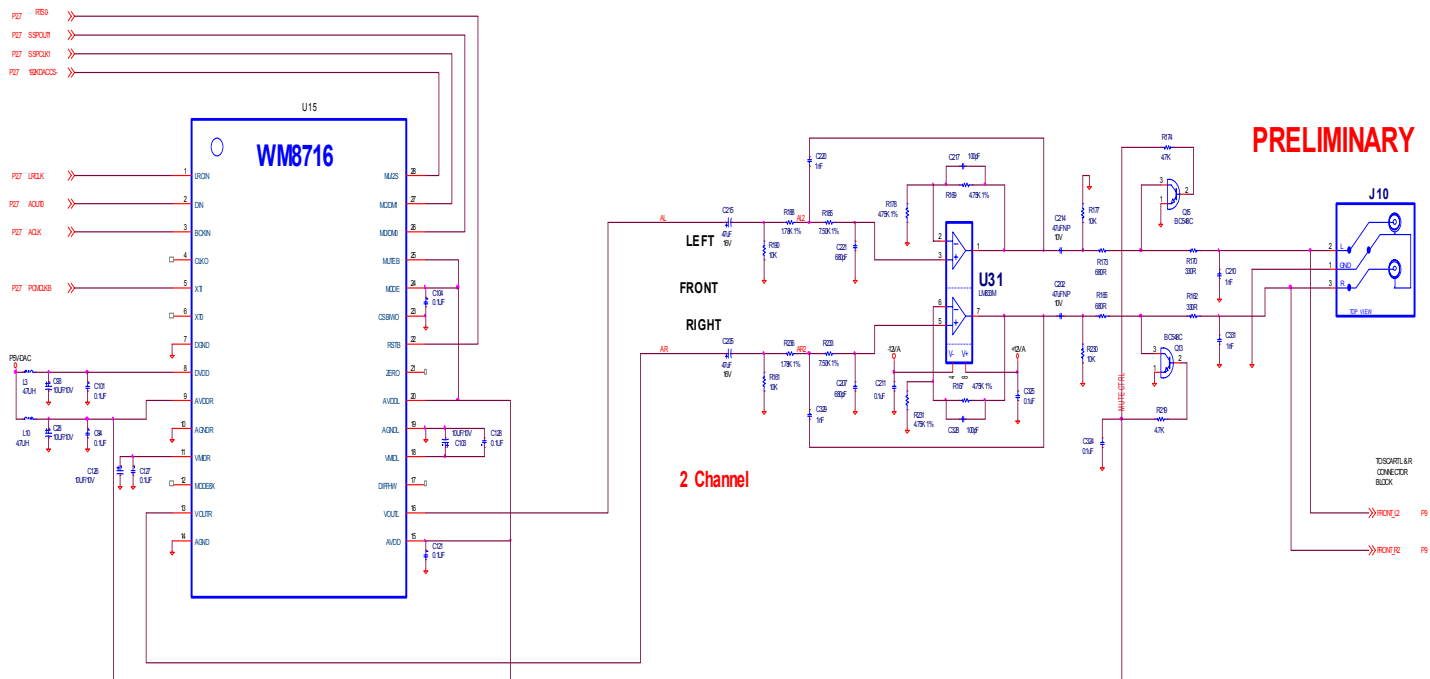
DVD 21 Component List for Output Board (736C)

[illegible]

DVD 21 Block Diagram







For INTEL and SHARP 1MB SOP 44 Programming
via CD-R upgrade (uses XIO2)

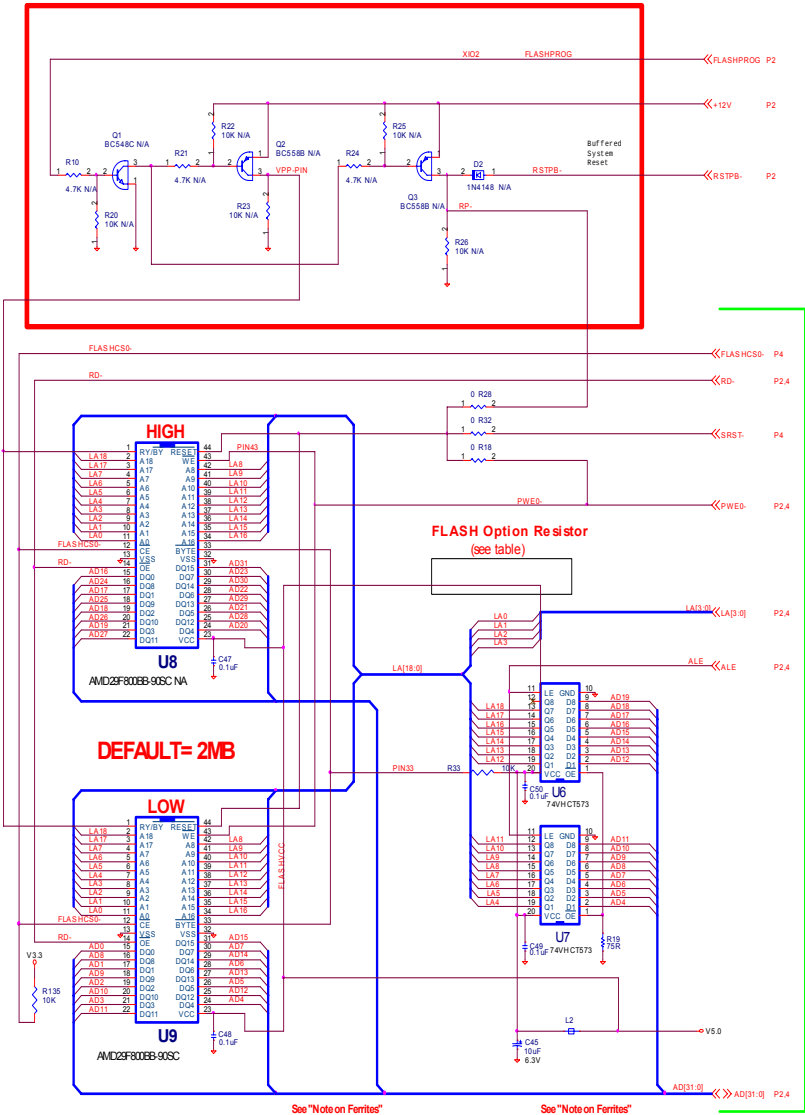
NOT INSTALLED

SOP 44 PIN PACKAGE							
MANUFACTURER	P/N	SIZE	PIN 23	VCC 3.3V	VCC 5.0V	PIN 33	VCC
MACRONIX	2W8007MC	512K X 8 5.0V		Y	BY TEL	Y	
ATMEL	AT49F8192A	512K X 8 5.0V		Y	NC		
SHARP		512K X 8 5.0V					

R33

TABLE for 5.0V LATCHES

MANUFACTURER	LATCH	FE RRITE	
		3.3V	5.0V
On (Motorola) Semiconductor (pns em) .com	MC74VHC1573	IN STAL	



Note on Ferrites:

Ferrites should have a current rating of 150mA minimum.
Some examples are:

Part Number	Current Rating	Size
Murata BLM11R005	500mA	EIA 0603
Murata BLM21R1025K	200mA	EIA 0805
Murata BLM21R2213K	200mA	EIA 0805

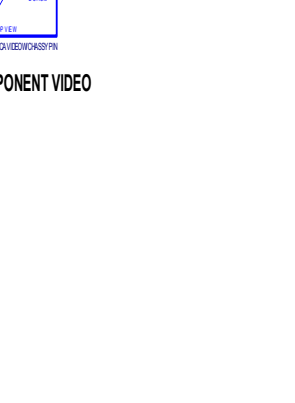
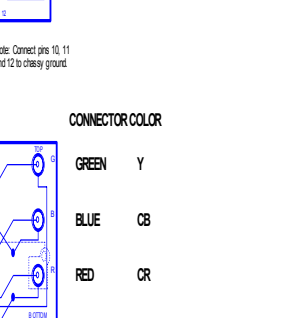
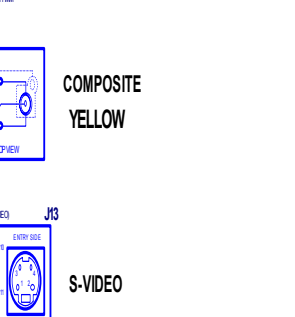
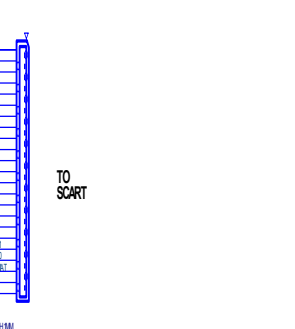
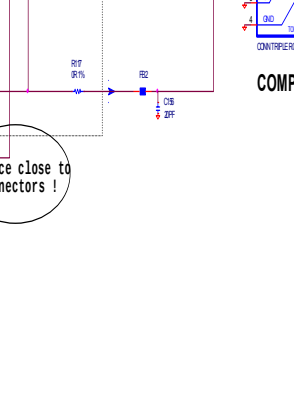
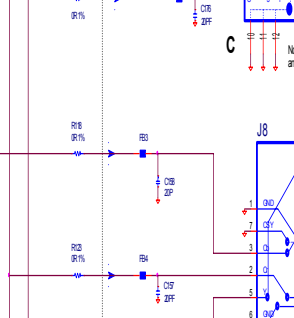
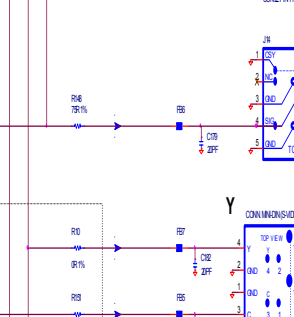
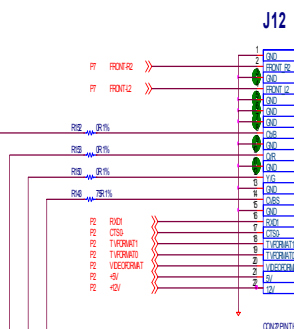
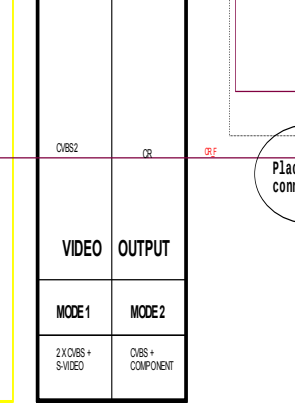
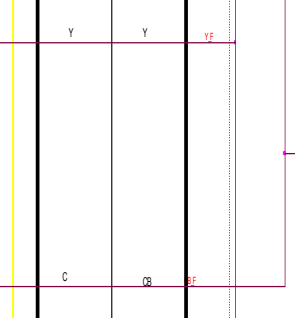
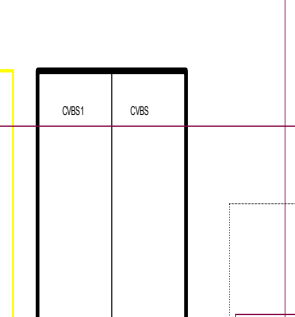
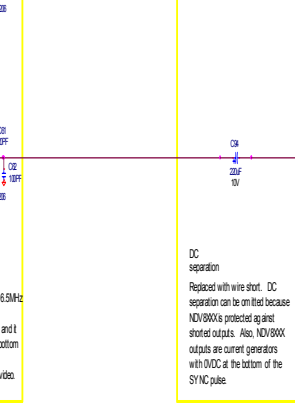
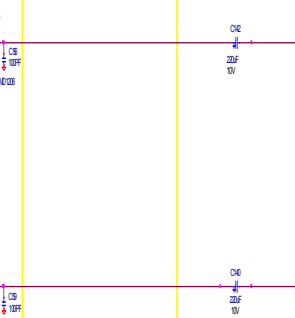
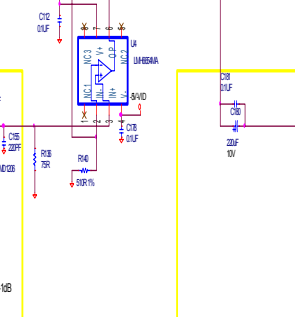
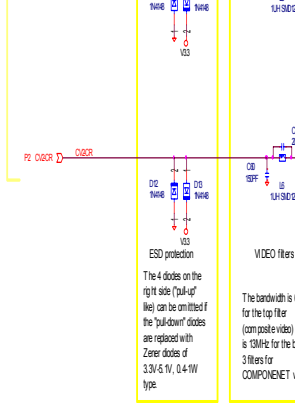
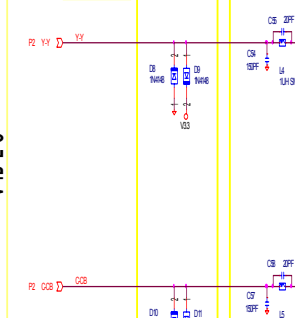
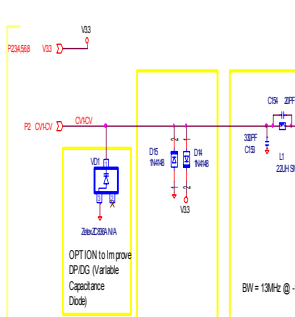
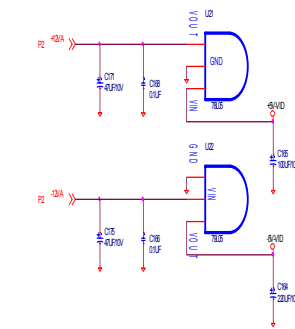
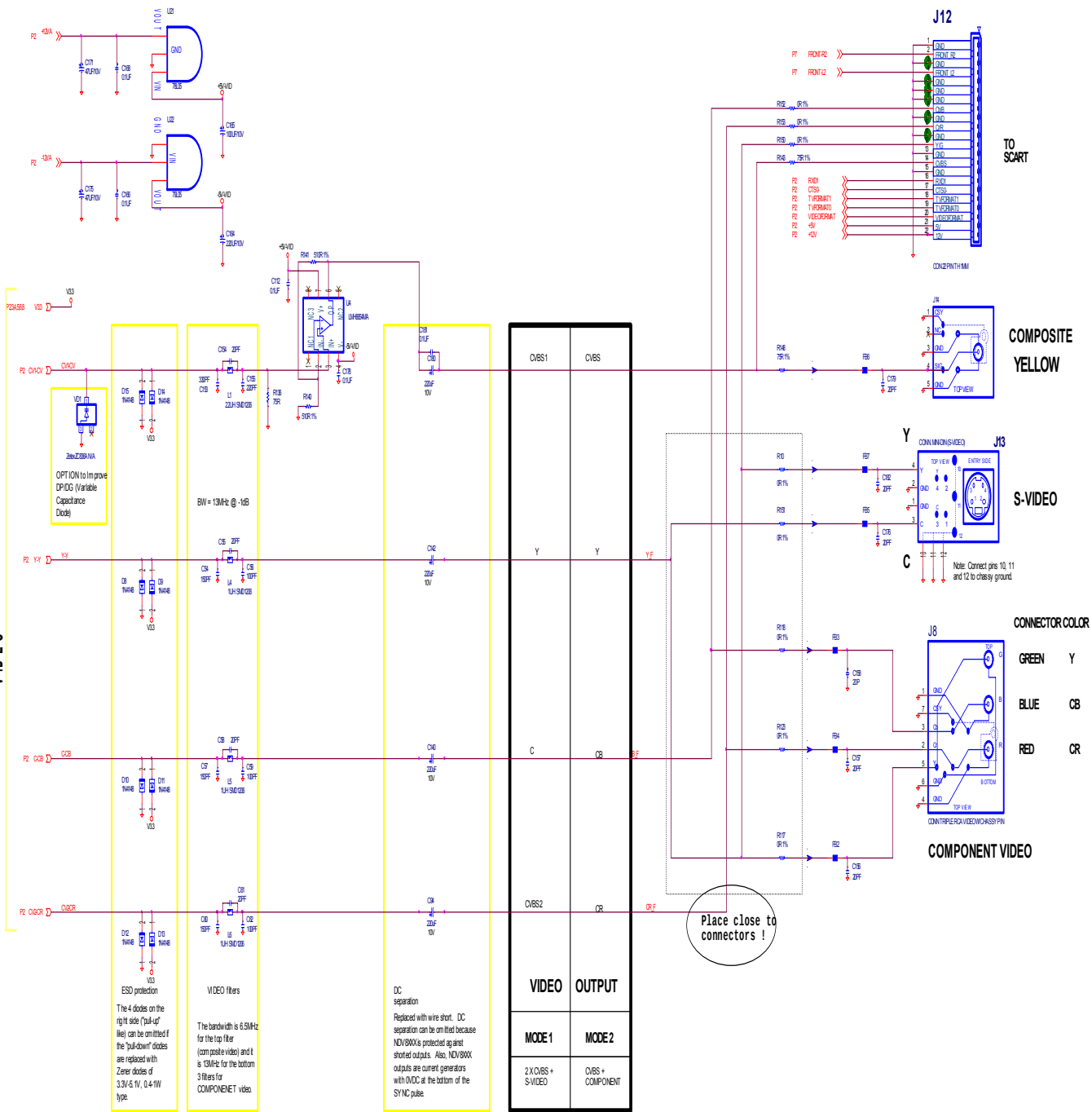
Notes:

For 3.3V FLASH use 3.3V latches also. For 5V FLASH use either 5V or 3.3V latch since the FLASH usually have TTL compatible inputs.

To reduce the power consumption, we recommend using 3.3V FLASH and LATCH.

Recommended FLASH speed grade is 90ns.

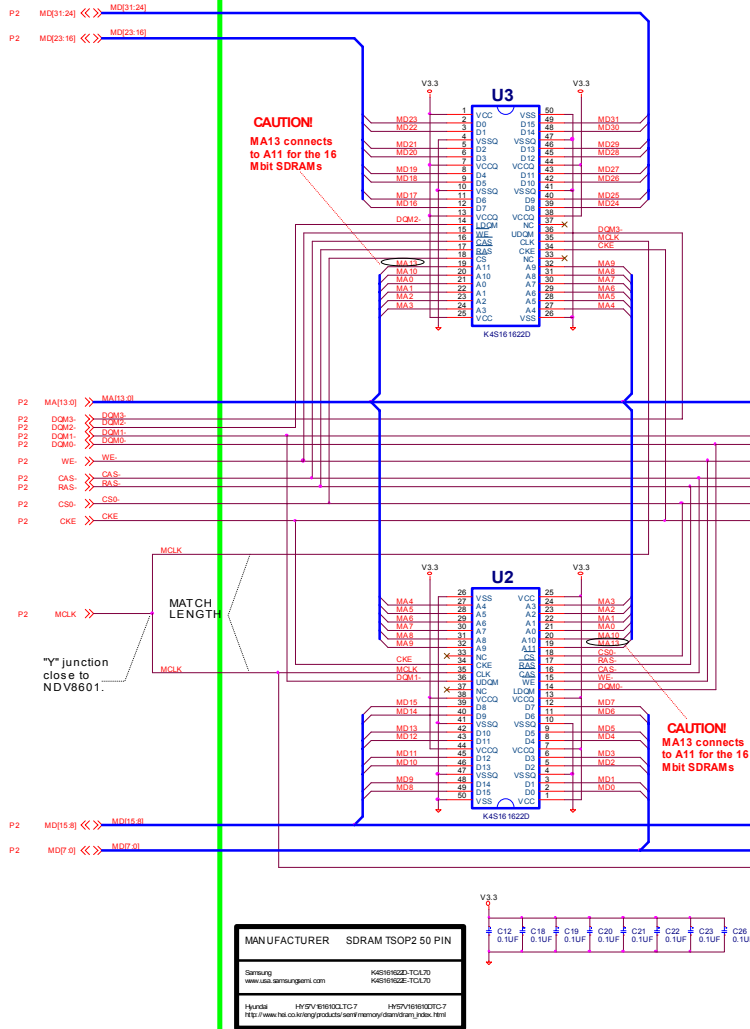
VIDEO



OPTION A

2 pcs. of 16MBIT SDRAM – The code boots and executes out of FLASH- uncompressed. Advantage is possible cost savings for 2 pcs. of 16Mbit vs. 1 pcs. of 64Mbit (depending on market) and faster boot up time.

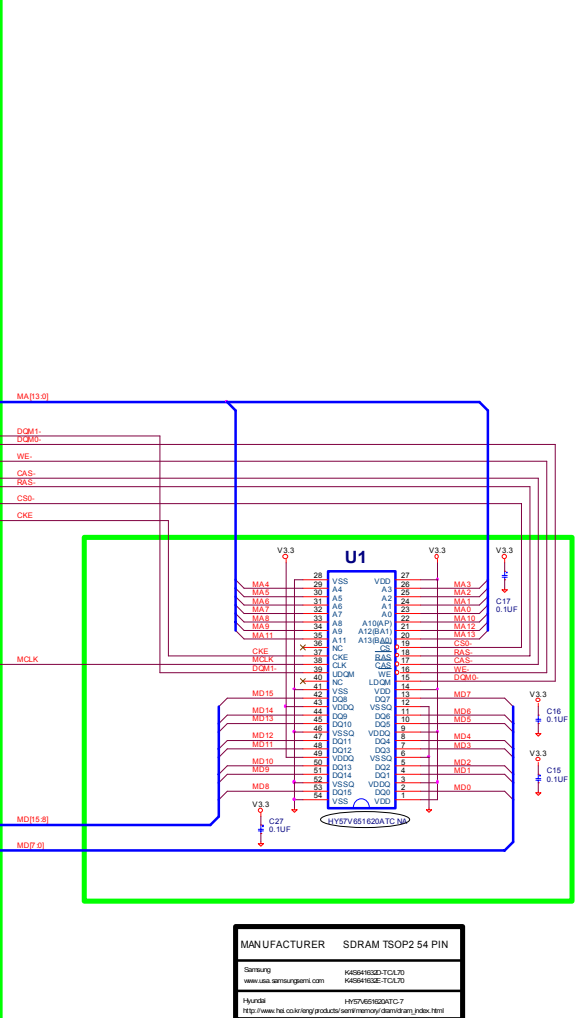
2 x 4 banks x 512K x 16bit
[16 Mbit]



OPTION B

1 pcs. of 64MBIT SDRAM -- the code boots from FLASH but executes out of SDRAM. The compressed code is downloaded from FLASH to SDRAM during boot up, which takes several seconds. Advantage is ability to fit inside 1MByte FLASH device (512Kx16). Disadvantage is minimal application is allowed to fit inside of 1MB with limited OSD.

4 banks x 1M x 16bit
[64 Mbit]



OUT

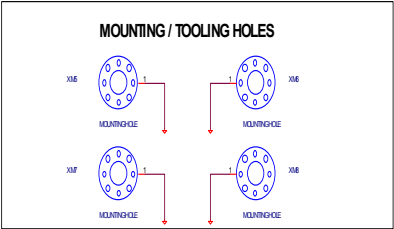
XIO ALLOCATION TABLE					
X-BUS CONN PIN	PIN NAME	I/O	SIGNAL NAME	APPLICATION	NOTES
77	PCS0-	OUT	FLASHCS0-	Chip select to FLASH memory, first bank	
95	OP ₀	IN	OP_FORMAT	Selects the Output Format of the Video depending on build (INT_gen.)	
96	ARET ₀	OUT	ARESET-	AUDIO RESET for all DACs	
81	XIO1	OUT	FLDCS-	Chip select for the Front Panel Microcontroller. Active LOW.	
NC	XIO2	OUT	FLASHPROG	Control Intel Flash Vpp	In a custom application, do not use this pin as a chip select since the FPGA development does not support it.
84	XIO3	OUT	AUDIOMUTE	Audio MUTE signal. Active HIGH. When HIGH, all audio outputs are muted simultaneously.	
85	XIO4	OUT	TVFORMAT0	Control SCART Pin8 Switch Level	
88	XIO5	OUT	TVFORMAT1	Control SCART Pin8 Switch Level	
89	XIO6	IN/OUT	SLVINT-	Dedicated signal for SLAVE mode development. This pin must NOT be used in the application.	Do not use this pin.
92	XIO7	IN	WKUP-	Wakeup and Key matrix interrupt input, 5V/3.3V CMOS level. Input from the Front Panel "Wakeup/Interrupt Circuit". When no key is pressed, XIO8 is high. When any key or combinations of keys are pressed, XIO8 will be low. After the key(s) are released, the signal will return to high after about 1ms.	
93	XIO8	OUT	192KDACC-	Chip select for the 192KHz audio DAC only. Active LOW.	
96	XIO9	OUT	FERST-	Front End Drive Reset. SW programmable. The signal polarity depends on the drive used.	
97	XIO10	OUT	VIDEOFORMAT	Control SCART Pin16, To Select the Video Output Format is RGB or CVBS	
100	XIO11	OUT	EECS	Chip select for the EEPROM. Active HIGH.	
N/A	XIO12				In a custom application, do not use these pins as a chip select since the FPGA development does not support it.
N/A	XIO13	OUT	REQ	Output from Pantera. This is TX_REQ going to the FE.	
N/A	XIO14	IN	ENABLE	Input to Pantera. This is TX_ENABLE- from the FE.	

Revision History		
Assembly Revision	Date	Description of Changes
SCH. REV: 1.10	2002-JUN-19	First release. Preliminary form.

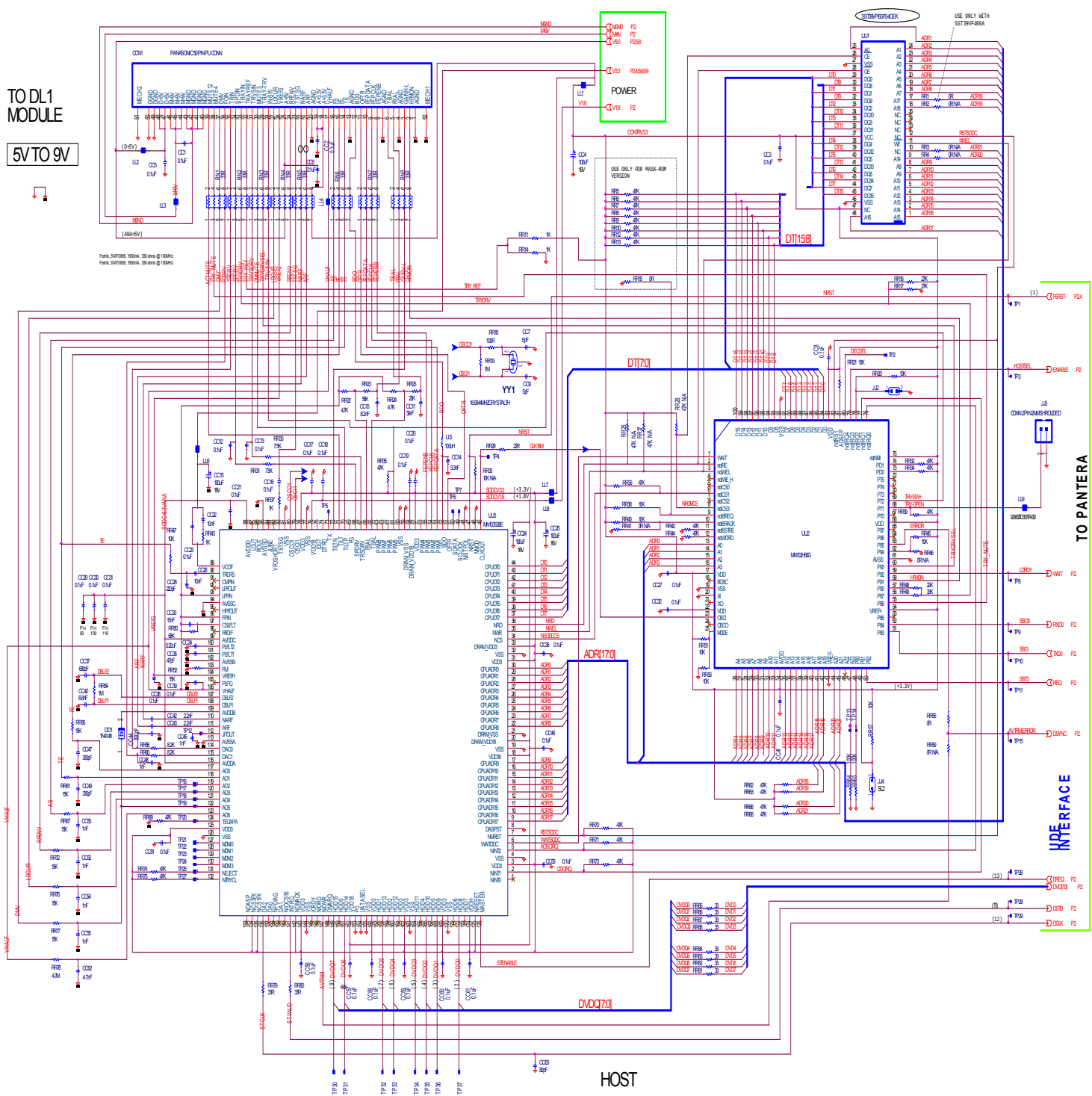
Chip	Source in PS unit	Diode drops in PS	Regulator input	Regulator drop	Output current	Regulator power dissipation
NDV8601	5V	1.6V	3.4V	1.6V	0.5A	0.8W
NDV8601	5V	0.9V	4.2V	1.7V	0.7A	1.2W

For correct regulation, LM1117 requires a minimum 1.2V voltage drop between the input and output.

NON-PLATED 125mil DIA. 250mil RING with 8 vias



PANTERA POWER SUPPLIES				
Pin name	Pin #	Function	Pantera-2 NDV8601	Pantera-2 Plus NDV860X
OSC0DD	101	Oscillator	2.5V	1.8V
MMCKIDD	102	Main & Video PLLs	3.3V	3.3V
AUXKIDD	107	Audio PLL	3.3V	3.3V
VDDDAC	108	DAC Digital	2.5V	1.8V
VAA3	113	DAC Analog	3.3V	3.3V
VBA	117	DAC Supply	2.5V	1.8V
VDDIO	110 19 27 36 44 53 62 75 91 125 140 154 169 181 196 210 226	I/O DIG. PWR	3.3V	3.3V
	235	8 pins		
VDD	4 34 77 88 135 159 192 212	Core DIG. PWR	2.5V	1.8V
		8 pins		
*DAC Analog supply for Pantera-2. DAC Digital supply for the others.				





IMPORTANT NOTE !
THIS CONNECTOR IS MANDATORY ON THE FIRST REVISION OF THE BOARD TO ALLOW SW DEVELOPMENT. WITHOUT THIS CONNECTOR IT IS IMPOSSIBLE TO DEVELOP SW FOR THE CUSTOMER SPECIFIC APPLICATIONS. LATER, AFTER THE DESIGN IS FINALIZED, THE CONNECTOR MAY BE REMOVED.