

# SERVICE MANUAL

MODEL :FL2660E/FL3260E

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This manual is the latest at the time of printing, and does not include the modification which may be made after the printing, by the constant improvement of product.

# IMPORTANT SAFETY INSTRUCTIONS

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**This symbol indicates " dangerous voltage " inside the product that presents a risk of electric shock or personal injury.**



**This symbol indicates important instructions accompanying the product.**

Please read this manual carefully before using this product.

- Before connecting the AC power cord ,make sure the voltage designation of the LCD TV corresponds to the local electrical supply .  
If you are unsure of your power supply , ask your local power company .
- Never insert anything metallic into the cabinet openings of the liquid crystal display LCD TV/monitor; otherwise it may create the danger of electric shock.
- To avoid electric shock, Never touch the inside of the LCD TV/monitor .  
Only a qualified technician should open the case of the LCD TV/monitor.
- Never use your LCD TV/monitor if the power cord has been damaged .  
Do not allow anything to rest on the power cord, and keep the cord away from place where people can trip over it .
- Be sure to hold the plug, not the cord, when disconnecting the power cord from an electric socket.
- Openings in the LCD TV/monitor cabinet are provided for ventilation.  
To prevent overheating, these openings should not be blocked or covered. Also, avoid using the LCD TV/monitor on a bed ,sofa ,rug, or other soft surface. Doing so may block the ventilation openings in the bottom of the cabinet. If you put the LCD TV/monitor in a bookcase or some other enclosed space, be sure to provide adequate ventilation.
- Do not expose the LCD TV/monitor to extreme temperature conditions or to extreme humidity conditions.
- The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids.

- Do not place the LCD TV/monitor on an unstable cart, stand, tripod, bracket, table, or floor where it can fall. It is damaged if dropped, hit or scratched. Do not clean the front with keton-type materials (e.g. Acetone), ethyl alcohol, toluene, ethyl acid, methyl, or chloride—these may damage the panel.
- If your LCD TV/monitor does not operate normally in particular, if there are any unusual sounds or smells coming from it, unplug it immediately and contact an authorized dealer or service center.
- High temperature can cause problems. Don't use your LCD TV/monitor in direct sunlight, and keep it away from heaters, stoves, fireplaces, and other sources of heat.
- Unplug the power cord when it is going to be left unused for an extended period of time.
- To reduce the risk of fire or electric shock, and annoying interference, use the recommended accessories only.
- If the LCD TV/monitor is broken, do not try to repair it yourself. Contact qualified service personnel.
- Unplug power cord from the AC outlet before any service.
- Be sure the service technician uses authorized replacement parts or their equivalents. Unauthorized parts may cause fire, electrical shock, or other hazards.
- Following any service or repair, be sure the service technician performs safety checks to certify that your TFT-LCD TV/monitor is in safe operating order.

SPECIFICATION

PRODUCT DESCRIPTION OF FL2660E/FL3260E			
ITEM	Details Descriptions		
Feature Description	FL2660E/FL3260E with high definition,high contrast & brightness,wide viewing angle LCD panel;analog PAL BG/DK/I,SECAM BG/DK/L/L' RF receiving system, SCART interface, 1000 pages Europe Text, BG/DK/I digital NICAM decoding,A2 stereo,Multi-mode PC signal display,USB Interface.		
Analog TV System	PAL-DK,I,BG,SECAM BG/DK,SECAM L/L'		Yes
AV System	PAL/SECAM/NTSC3.58&NTSC4.43		Yes
Analog Channel Coverage: (For SECAM BG/DK,PAL BG/DK/I)	VHF-L	E2~S10(48.25~168.25MHz)	Yes
	VHF-H	E5~S41(175.25~463.25MHz)	
	UHF	E21~E69(471.25~855.25MHz)	
Analog Channel Coverage:(For SECAM L)	VHF-L	FA-F(47.75~164.75MHz)	Yes
	VHF-H	F1-Q(176.00~296.75MHz)	
	UHF	21~69(471.25~855.25MHz)	
Channels Manage	Tuning System		FS With PLL
	Pre-set Channel		100
	Tuner Band		Hyper Band
	Auto Channel Scanning		Yes
Antenna Impedance	75 Ohm Unbalanced		Yes
AC Input Range	Input	~100V—240V 50Hz/60Hz	Yes
	USB Interface		Yes

Interface	Main TV control keys:Standby,Source,Menu,Programme+/-,Volume +/-,			Yes
	Back AV	Video ( 1 RCA socket)& Audio( 2RCA socket)		Yes
	Component	Component Image Input ( 3 RCA socket)		Yes
	TV RF Input	75 Ohm Unbalanced (IEC Type)		Yes
	SCART Interface	21 PIN Socket with full function (RGB In/Video In &Out/Audio In&Out		Optional(1 or 2)
	PC(VGA) Input	PC Image Input ( 15Pin D-Sub )		Yes
		PC Audio Input ( Φ3.5 Jack)		Yes
	HDMI Interface	HDMI Standard socket		2
	Head phone	Φ3.5 Jack		Yes
Facing viewing	LED Indicators & Remote Sensor			Standby(Red)/On(Green ); Sensor is Reclusive
Audio	Output Power(Max)			5.0W×2
	Number of Speaker			2
	NICAM/A2 STEREO			Yes
	Tone ( with base/Treble/Balance)			Yes
Main Electrical Specification For TV Section	Video sensitivity at 30dB S/N	VHF: ≤48dB		Yes
		UHF: ≤51dB		Yes
	sound sensitivity at 30dB S/N	FM (for BG/DK/I)	≤35dB	Yes
		Am (for L/L')	≤39dB	Yes
	Synchronizing Sensitivity	≤35dB		Yes
	Color Sensitivity	≤38dB		Yes
	Teletext Sensitivity	≤50dB		Yes
	NICAM Threshold	45+/-2dB		Yes
	I.F. Rejection	≤30dB		Yes
		Adjacent sound carrier	≤35dB	Yes

	Selectivity	Below adjacent sound carrier	≤30dB	Yes
		UP adjacent picture carrier	≤40dB	Yes
	Image Rejection	VHF	≤51dB	Yes
		UHF	≤46dB	
	Audio Frequency Response	100Hz---12KHz ( +/- 3dB refer to 1KHz)		Yes
	Sound to Noise Ratio	≥46dB		Yes
	White Chromaticity	TBA.(Specific upon client requirement)		Yes
Main Electrical Specification For USB Section	Supporting Digital Video Format: 1: MPEG-1 ML/MP conforming to ISO-11172 2: MPEG-2 ML/MP conforming to ISO-13818 3: MPEG-4 and Divx 3.x/4.x/5.x compliant			Yes
	Supporting digital Audio format: 1:Full MPEG Audio Layer I . II and III(MP3) 2:Flexibity to Doby AC-3 5.1 Channel or 2 Channel Down-mixing,HDCD,MP3 and WMA 3:SPDIF(IEC958) Input and output			Yes
Power Consumption	On working			120W(Max.)
	Standby			≤1W
TELETEXT	1000 Pages			Yes
Operating Temperature Range				5℃ To 35℃
Dimension(mm)				TBA
Net Weight/Gross Weigh				TBA
Packing				TBA

Accessories		User Manual, Remote Control, Power Adapter,
Regulations	Safety	CE LVD or Others Standards Upon Customer Requirement
	EMI	CE EMC or Others Standards Upon Customer Requirement
Specifications are subject to change without notice.		

# IC'S GENERAL DESCRIPTION

## MSD106CL design description

Figure 1 is pin configuration of MSD106CL.

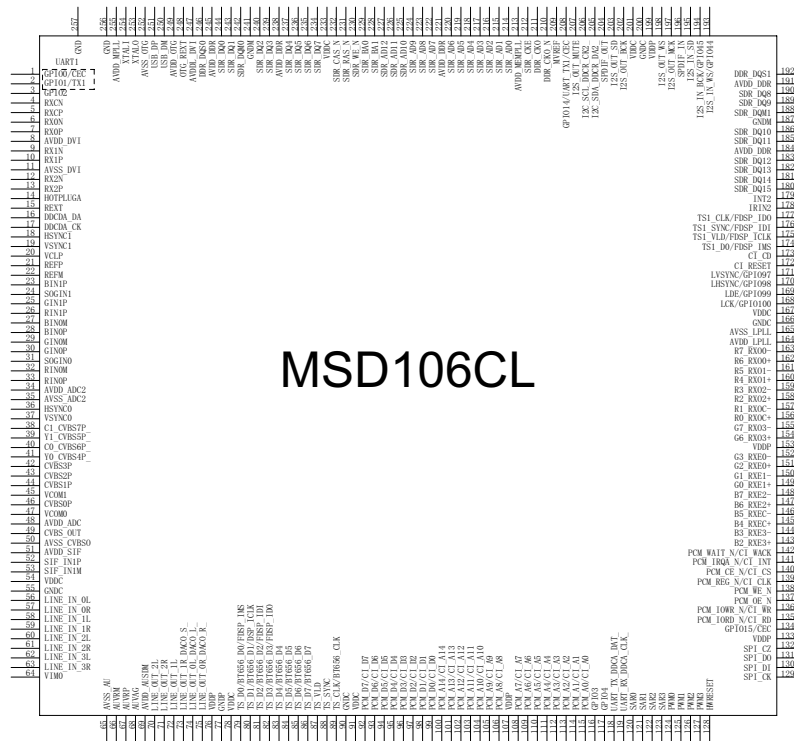


Figure 1

## Pin Description

PIN DESCRIPTION		
Analog Interface		
Pin Name	Function	Pin
VCLAMP	CVBS/YC Mode Clamp Voltage Bypass	20
REFP	Internal ADC Top De-coupling Pin	21
REFM	Internal ADC Bottom De-coupling Pin	22
REXT	External Resister 390 ohm to AVDD_33	15
BIN1P	Analog Blue Input from Channel 1	23
SOGIN1	Sync-On-Green input from Channel 1	24
GIN1P	Analog Green Input from Channel 1	25
RIN1P	Analog Red Input from Channel 1	26
BINM	Reference Ground for Analog Blue Input	27
BINOP	Analog Blue Input from Channel 0	28
GINM	Reference Ground for Analog Green Input	29
GINOP	Analog Green Input from Channel 0	30
SOGINO	Sync-On-Green Input from Channel 0	31
RINM	Reference Ground for Analog Red Input	32
RINOP	Analog Red Input from Channel 0	33
HSYNC1	HSYNC/Composite Sync for VGA Input from channel 1	18
VSYN1	VSYN for VGA Input from channel 1	19
HSYN0	HSYNC/Composite Sync for VGA Input from channel 0	36
VSYN0	VSYN for VGA Input from channel 0	37
Analog Video Input/Output Interface		
Pin Name	Function	Pin
VCOM1	CVBS Video Input Reference Ground	45
VCOM0	CVBS Video Input Reference Ground	47
CVBS7	CVBS (Composite) Video Input Channel 7	38
CVBS5	CVBS (Composite) Video Input Channel 5	39
CVBS6	CVBS (Composite) Video Input Channel 6	40
CVBS4	CVBS (Composite) Video Input Channel 4	41
CVBS3	CVBS (Composite) Video Input Channel 3	42
CVBS2	CVBS (Composite) Video Input Channel 2	43
CVBS1	CVBS (Composite) Video Input Channel 1	44
CVBS0	CVBS (Composite) Video Input Channel 0	46
CVBSOUT	CVBS (Composite) Video Output	49
Analog Audio Input/Output Interfa		
Pin Name	Function	Pin
SIF1P	SIF Audio Input Channel 1	52
SIF1M	Reference Ground for SIF Audio Input Channel 1	53
I2S_OUT_MCK	Audio Master Clock Output	197
I2S_OUT_BCK	Audio Bit Clock Output	202
I2S_OUT_WS	Word Select Output; 4mA driving strength	198
I2S_OUT_SD	Audio Serial Data Output; 4mA driving strength	203
I2S_OUT_MUTE/ CEC	Audio Output Mute Control / Consumer Electronics Control	207
SPDIF0	S/PDIF Audio Output; 4mA driving strength	204
I2S_IN_BCK	Audio Bit Clock Input	194
I2S_IN_WS	Word Select Input	193

I2S_IN_SD	Audio Serial Data Input	195
SPDIFI	S/PDIF Audio Input	196
AUVRM	Negative Reference Voltage for Audio ADC	66
AUVRP	Positive Reference Voltage for Audio ADC	67
AUVAG	Reference Voltage for Audio Common Mode	68
AULO	Audio Line Input Left Channel 0	56
AURO	Audio Line Input Right Channel 0	57
AUL1	Audio Line Input Left Channel 1	58
AUR1	Audio Line Input Right Channel 1	59
AUL2	Audio Line Input Left Channel 2	60
AUR2	Audio Line Input Right Channel 2	61
AUL3	Audio Line Input Left Channel 3	62
AUR3	Audio Line Input Right Channel 3	63
AUOUTL2	Main Audio Output Left Channel 2	70
AUOUTR2	Main Audio Output Right Channel 2	71
AUOUTL1	Main Audio Output Left Channel 1	72
AUOUTR1	Main Audio Output Right Channel 1	73
AUOUTL0	Main Audio Output Left Channel 0	74
AUOUTR0	Main Audio Output Right Channel 0	75
AUCOM	Reference Ground for Audio Line Input	64

#### Common Interface

Pin Name	Function	Pin
PCMDATA[7:0]/ CI_DATA[7:0]	PCMCIA Data[7:0] / Common Interface Data[7:0]	92-99
PCMAADR[14:0]/ CI_A[14:0]	PCMCIA Address[14:0] / Common Interface Address[14:0]	100-106, 108-115
PCMIOR/ CI_RD	PCMCIA Input/Output Read / Common Interface Read	135
PCMIOW/ CI_WR	PCMCIA Input/Output Write / Common Interface Write	136
PCMOEN	PCMCIA Output Enable	137
PCMWEN	PCMCIA Write Enable	138
PCMREG/ CI_CLK	PCMCIA Register / Common Interface Clock	139
PCMSEN/ CI_CS	PCMCIA Card Enable / Common Interface Chip Select	140
PCMIQ/ CI_INT	PCMCIA Interrupt Request / Common Interface Interrupt	141
PCMWAIT/ CI_WACK	PCMCIA Extend Bus Wait Cycle / Common Interface Wait Acknowledge	142
CI_RST	Common Interface Reset	172
CI_CD	Common Interface Card Detect	173

#### TS Input Interface

Pin Name	Function	Pin
TS0CLK	TS Clock	89
TS0DATA[7:0]	TS Data in Parallel; LSB (bit 0) is for serial TS data	86-79
TS0VALID	TS Data Valid	87
TS0SYNC	TS Sync-Byte Indicator	88
TS1CLK	2nd TS Clock	177

TS1DATA	2nd TS Data in Parallel	174
TS1VALID	2nd TS Data Valid	175
TS1SYNC	2nd TS Sync-Byte Indicator	176

### DVI/HDMI Interface

Pin Name	Function	Pin
RX0N	DVI/HDMI Channel 0 Negative Data Input	6
RX0P	DVI/HDMI Channel 0 Positive Data Input	7
RX1N	DVI/HDMI Channel 1 Negative Data Input	9
RX1P	DVI/HDMI Channel 1 Positive Data Input	10
RX2N	DVI/HDMI Channel 2 Negative Data Input	12
RX2P	DVI/HDMI Channel 2 Positive Data Input	13
RXCKN	DVI/HDMI Negative Clock Input	4
RXCKP	DVI/HDMI Positive Clock Input	5

### LVDS Interface

Pin Name	Function	Pin
LVA0M	LVDS A-Link Channel 0 Negative Data Output	152
LVA0P	LVDS A-Link Channel 0 Positive Data Output	151
LVA1M	LVDS A-Link Channel 1 Negative Data Output	150
LVA1P	LVDS A-Link Channel 1 Positive Data Output	149
LVA2M	LVDS A-Link Channel 2 Negative Data Output	148
LVA2P	LVDS A-Link Channel 2 Positive Data Output	147
LVACKM	LVDS A-Link Negative Clock Output	146
LVACKP	LVDS A-Link Positive Clock Output	145
LVA3M	LVDS A-Link Channel 3 Negative Data Output	144
LVA3P	LVDS A-Link Channel 3 Positive Data Output	143
LVB0M	LVDS B-Link Channel 0 Negative Data Output	163
LVB0P	LVDS B-Link Channel 0 Positive Data Output	162
LVB1M	LVDS B-Link Channel 1 Negative Data Output	161
LVB1P	LVDS B-Link Channel 1 Positive Data Output	160
LVB2M	LVDS B-Link Channel 2 Negative Data Output	159
LVB2P	LVDS B-Link Channel 2 Positive Data Output	158
LVBCKM	LVDS B-Link Negative Clock Output	157
LVBCKP	LVDS B-Link Positive Clock Output	156
LVB3M	LVDS B-Link Channel 3 Negative Data Output	155
LVB3P	LVDS B-Link Channel 3 Positive Data Output	154

### Serial Flash Interface

Pin Name	Function	Pin
SCK	SPI Flash Serial Clock	129
SDI	SPI Flash Serial Data Input	130
SDO	SPI Flash Serial Data Output	131
SCZ	SPI Flash Chip Select	132
IRIN	IR Receiver Input	178
INT	MCU Bus Interrupt; 4mA driving strength	179

### GPIO Interface

Pin Name	Function	Pin
GPIO125	General Purpose Input/Output; 4mA driving strength	14
GPIO100	General Purpose Input/Output; 4mA driving strength	168

GPI099	General Purpose Input/Output; 4mA driving strength	169
GPI098	General Purpose Input/Output; 4mA driving strength	170
GPI097	General Purpose Input/Output; 4mA driving strength	171
GPI015/CEC	General Purpose Input/Output; 4mA driving strength	134
GPI014/ UART_TX1	General Purpose Input/Output; 4mA driving strength / Universal Asynchronous Transmitter	208
GPI04	General Purpose Input/Output; 4mA driving strength	117
GPI03	General Purpose Input/Output; 4mA driving strength	116
GPI02	General Purpose Input/Output; 4mA driving strength	3
GPI01/ UART_TX1	General Purpose Input/Output; 4mA driving strength / Universal Asynchronous Transmitter	2
GPI00/ UART_RX1/ CEC	General Purpose Input/Output; 4mA driving strength / Universal Asynchronous Receiver / Consumer Electronics Control	1
PWM3	Pulse Width Modulation Output; 4mA driving strength	127
PWM2	Pulse Width Modulation Output; 4mA driving strength	126
PWM1	Pulse Width Modulation Output; 4mA driving strength	125
PWM0	Pulse Width Modulation Output; 4mA driving strength	124
SAR3	SAR Low Speed ADC Input 3; General Purpose Input/Output	123
SAR2	SAR Low Speed ADC Input 2; General Purpose Input/Output	122
SAR1	SAR Low Speed ADC Input 1; General Purpose Input/Output	121
SAR0	SAR Low Speed ADC Input 0;	120
	General Purpose Input/Output	
<b>DRAM Interface</b>		
<b>Pin Name</b>	<b>Function</b>	<b>Pin</b>
DQM[1:0]	Data Mask for Low Byte; active high	188, 242
DQS[1:0]	Data Strobe	192, 246
MVREF	Reference Voltage for DDR SDRAM Interface	209
MCLKZ	DRAM Memory Negative Differential Clock	210
MCLK	DRAM Memory Positive Differential Clock	211
MCLKE	DRAM Memory Clock Enable	212
BADR[1:0]	DRAM Memory Bank Address	228, 229
WEZ	Write Enable; active low	230
RASZ	Row Address Strobe; active low	231
CASZ	Column Address Strobe; active low	232
MDATA[15:0]	DRAM Memory Data Bus	180–183, 185, 186, 189, 190, 234–237, 239, 240, 243, 244
MADR[12:0]	DRAM Memory Address	227–222, 220–214
<b>USB Interface</b>		
<b>Pin Name</b>	<b>Function</b>	<b>Pin</b>

USB_REXT	USB External Resistor Pin; Connected through 910 ohm ( $\pm 1\%$ ) Resistor to GND (Pin #252)	248
USB_DM	USB Inverting Data Input/Output	250
USB_DP	USB Non Inverting Data Input/Output	251
<b>Misc Interface</b>		
<b>Pin Name</b>	<b>Function</b>	<b>Pin</b>
DDCD_DA	HDCP Serial Bus Data/DDC Data of DVI/HDMI Port	16
DDCD_CK	HDCP Serial Bus Clock/DDC Clock of DVI/HDMI Port	17
DDCA_DA	DDC Data for Analog Port	118
DDCA_CK	DDC Clock for Analog Port	119
HWRESET	Hardware Reset; active high	128
DDCR_DA	DDC Data for ROM	205
DDCR_CK	DDC Clock for ROM	206
XIN	Crystal Oscillator Input	254
XOUT	Crystal Oscillator Output	253
<b>Power Pins</b>		
<b>Pin Name</b>	<b>Function</b>	<b>Pin</b>
AVDD_SIF	SIF Power	51
AVDD_AU	Audio Power	69
AVDD_DDR	DDR Power	184, 191, 221, 238, 245
AVDD_LPLL	LPLL Power	164
AVDD_MPLL	MPLL Power	255
AVDD_MEMPLL	PLL Power	213
AVDD_33	ADC Power	8, 34, 48
AVDDL_DVI	DVI Power	247
AVDD_USB	USB Power	249
VDDC	Digital Core Power	54, 78, 91, 167, 201, 233
VDDP	Digital Input/Output Power	76, 107, 133, 153, 199
GND	Ground	11, 35, 50, 55, 65, 77, 90, 165, 166, 187, 200, 241, 252, 256

WJCE6353 design description  
Figure 2 is pin configuration of WJCE6353.

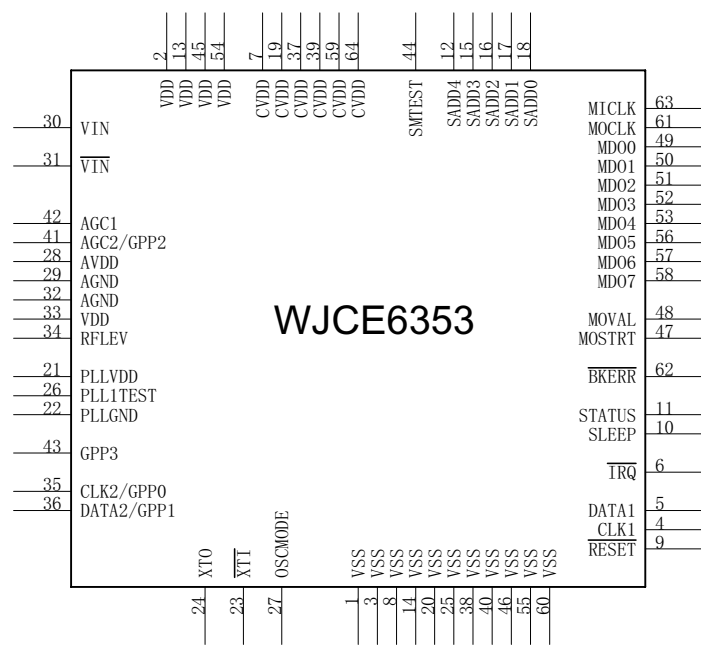


Figure 2

# Pin Description

Pin Description		
Name	Function	Pin
MPEG pins		
MOSTRT	MPEG packet start	47
MOVAL	MPEG data valid	48
MDO(0:4)/MDO(5:7)	MPEG data bus	49–53, 56–58
MOCLK	MPEG clock out	61
BKERR	Block error	62
MICKL	MPEG clock in	63
STATUS	Status output	11
IRQ	Interrupt output	6
Control pins		
CLK1	Serial clock	4
DATA1	Serial data	5
XTI	Low phase noise oscillator	23
XTO		24
SLEEP	Device power down	10
SADD(4:0)	Serial address set	12, 15–18
SMTEST	Production test (only se	44
CLK2/GPP0	Serial clock tuner	35
DATA2/GPP1	Serial data tuner	36
AGC1	Primary AGC	42
AGC2/GPP2	Secondary AGC	41
GPP(3)	General purpose I/O	43
RESET	Device reset	9
OSCMODE	Crystal oscillator mode	27
PLLTEST	PLL analog test	26
VIN	positive input	30
VIN	negative input	31
RFLEV	RF level	34
Supply pins		
PLLVdd	PLL supply	21
PLLGnd		22
CVdd	Core logic power	7, 19, 37, 39, 59, 64
Vdd	I/O ring power	2, 13, 45, 54,
Vss	Core and I/O ground	1, 3, 8, 14, 20, 25, 38, 40, 46, 55, 60
AVdd	ADC analog supply	28
AGnd		29, 32
Vdd	2nd ADC supply	33

HYB25DC256163CE-4 design description  
Figure 3 is pin configuration of HYB25DC256163CE-4.

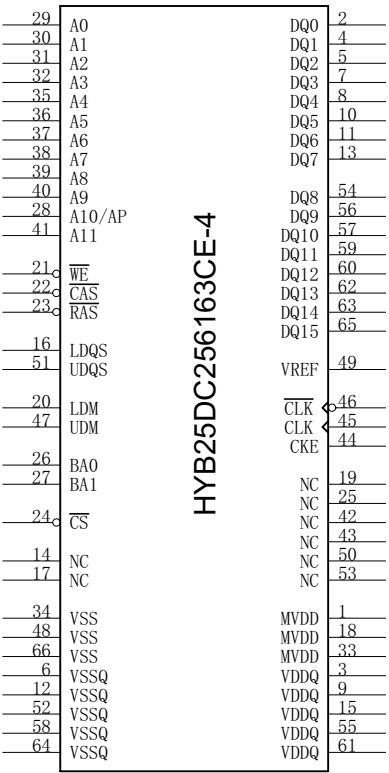


Figure 3

Pin Description

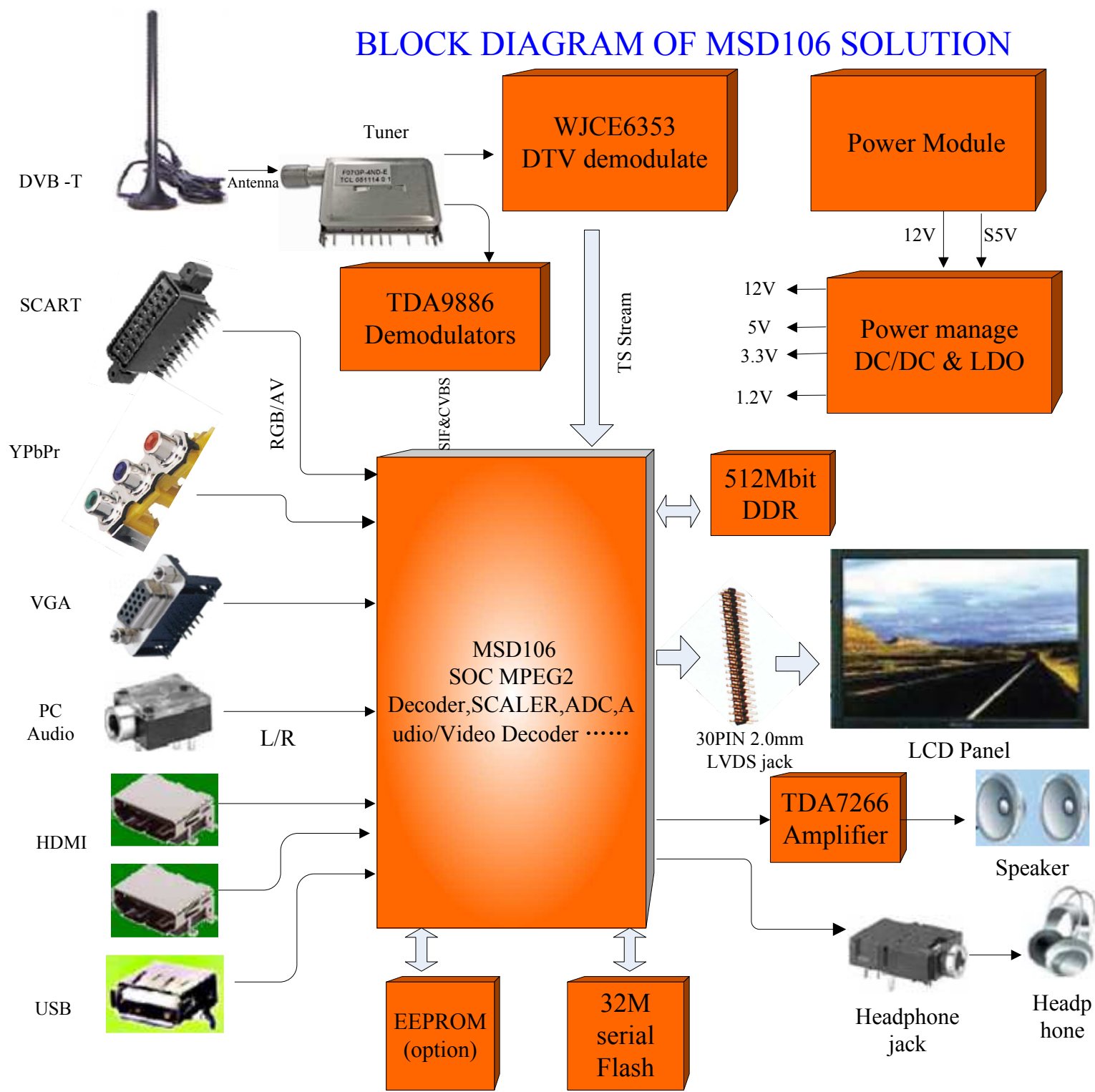
PIN DESCRIPTION		
Name	Function	Pin
Data Signals × 8 Organization		
DQ0	Data Signal 7:0	2
DQ1		5
DQ2		8
DQ3		11
DQ4		56
DQ5		59
DQ6		62
DQ7		65
Data Strobe × 8 Organization		
DQS	Data Strobe	51
Data Mask × 8 Organization		
DM	Data Mask	47
Data Signals ×16 Organization		
DQ0	Data Signal 15:0	2
DQ1		4
DQ2		5
DQ3		7
DQ4		8
DQ5		10
DQ6		11
DQ7		13
DQ8		54
DQ9		56
DQ10		57
DQ11		59
DQ12		60
DQ13		62
DQ14		63
DQ15		65
Data Signals × 16 Organization		
UDQS	Data Strobe Upper Byte	51
LDQS	Data Strobe Lower Byte	16
Data Mask ×16 Organization		
UDM	Data Mask Upper Byte	47
LDM	Data Mask Lower Byte	20
Power Supplies		
VREF	I/O Reference Voltage	49
VDDQ	I/O Driver Power Supply	3, 9, 15, 55, 61
VDD	Power Supply	1, 18, 33

# SPECIAL IC INTRODUCTON

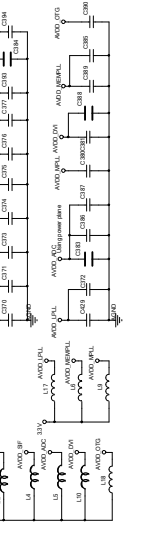
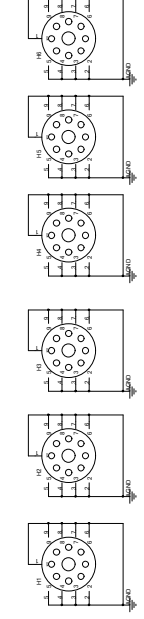
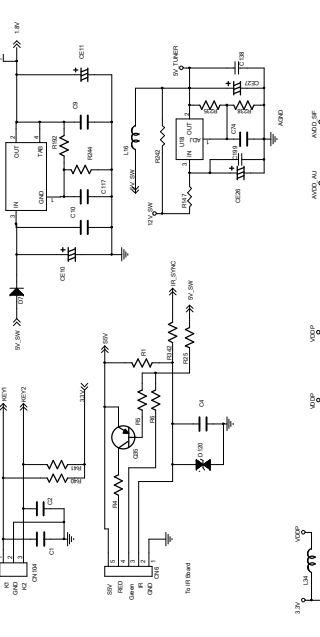
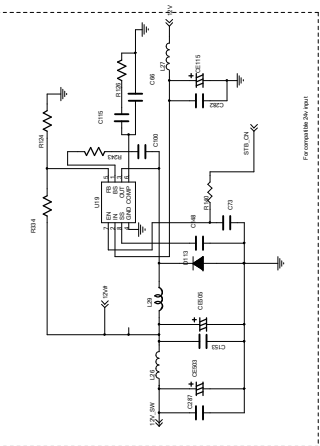
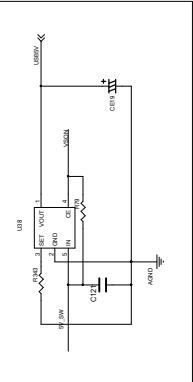
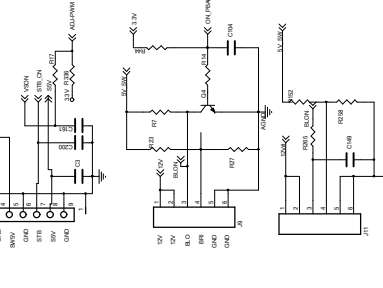
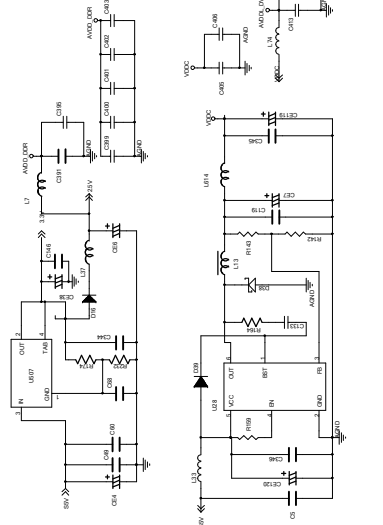
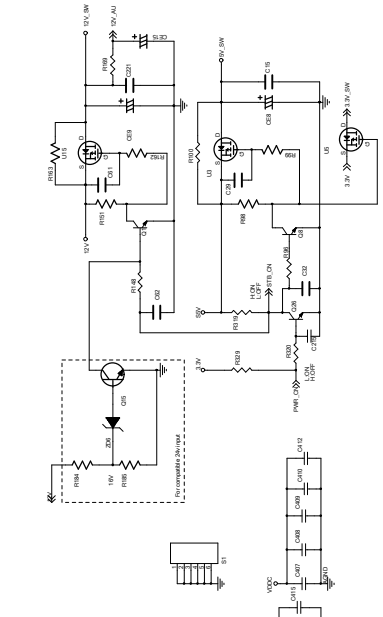
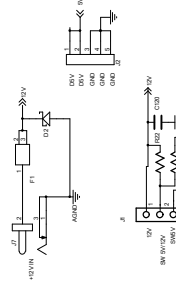
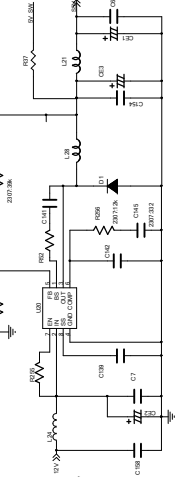
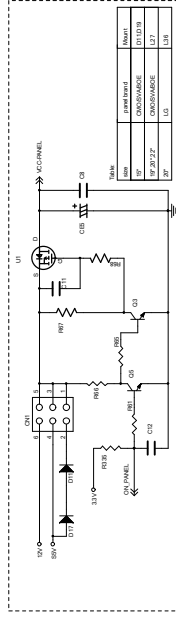
U2	MSD106CHL	Main IC (CPU/Decode/Scanner )
U14	WJCE6353	DTV demodulator
U9	HYB25DC256163CE-4	256Mbit DDR
U24	MX25L3205DM1/2I-12G	4Mbit Serial Flash Rom
U26	TDA9886TS	ATV demodulator
U6, U11	PI5V330QE	4-channel video switch
U32, U33	UTC4558	Dual operational amplifier
U12, U120, U43	M24C02	2Kbit serial IIC bus EEPROM
U8	TDA7266SA	Audio power amplifier
U20	MP2307	DC TO DC converter for 5V output
U4	AZ1117H-ADJTR	1.8V(Adjustable) VOLTAGE REGULATOR
U28	MP2259DT-LF-Z	DC TO DC converter for 1.2V output
U507	BL1084-CY	3.3V(Adjustable) VOLTAGE REGULATOR
U18	AZ1117H-ADJTR	5V(Adjustable) VOLTAGE REGULATOR

# BLOCK DIAGRAM

## BLOCK DIAGRAM OF MSD106 SOLUTION

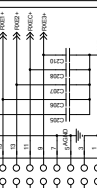
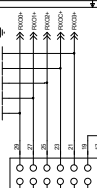
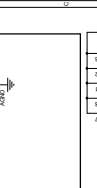
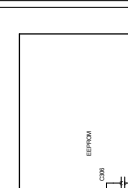
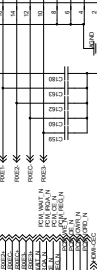
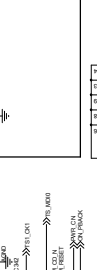
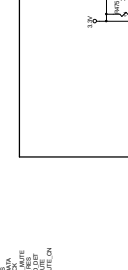
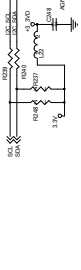
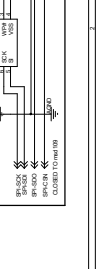
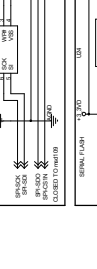
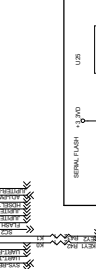
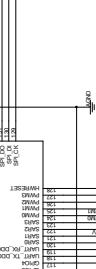
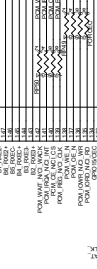
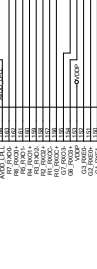
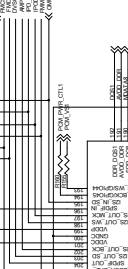
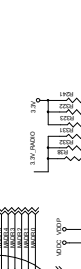
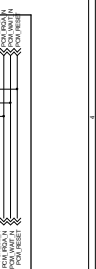
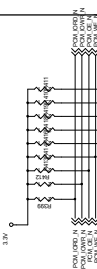
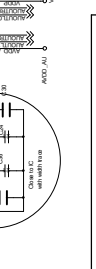
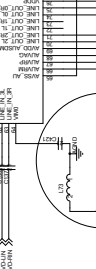
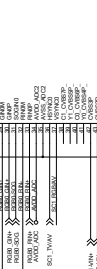
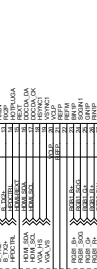
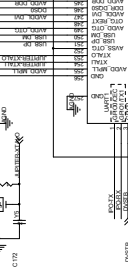
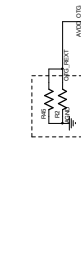
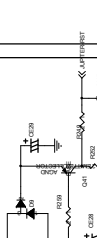
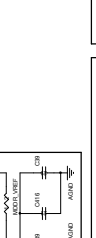
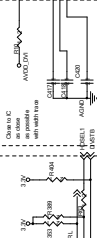
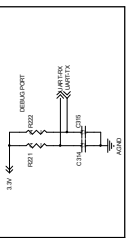
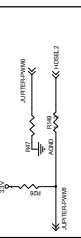


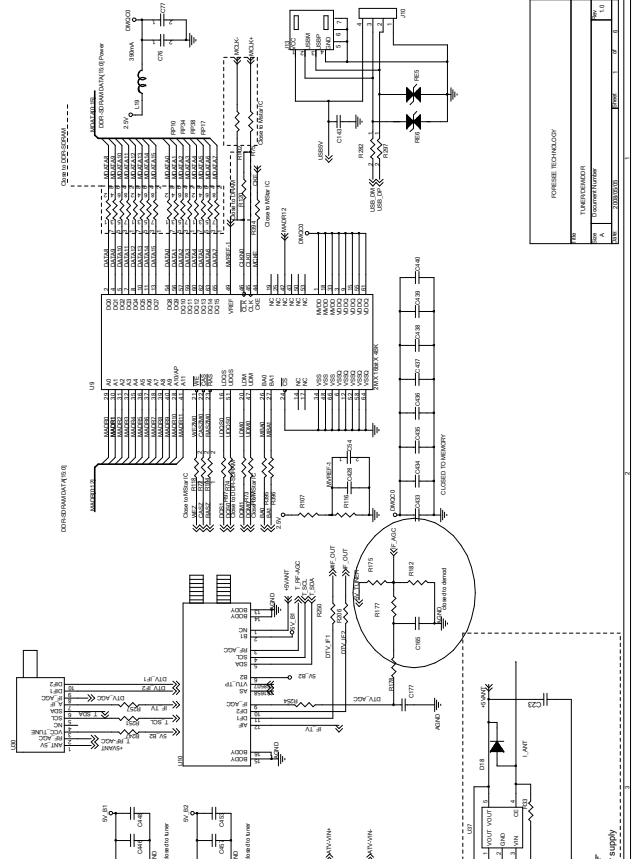
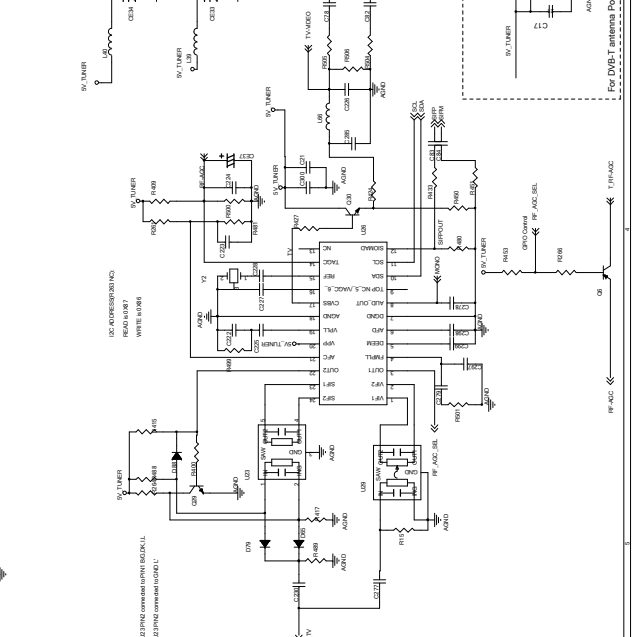
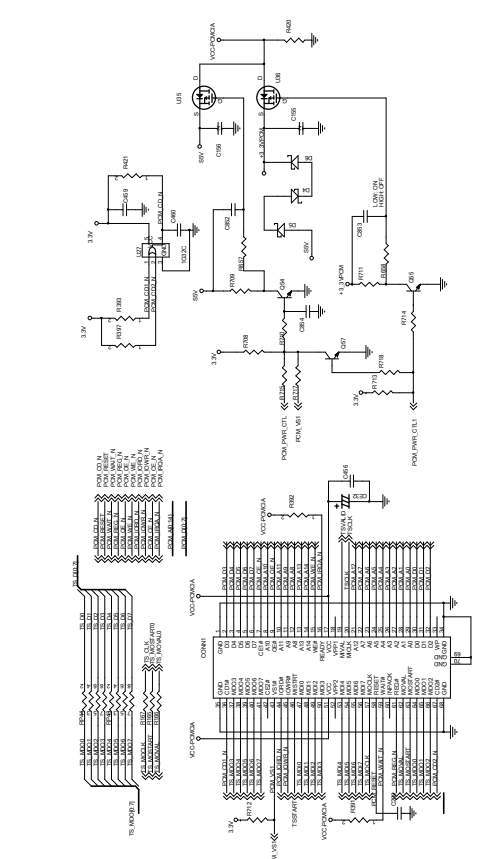
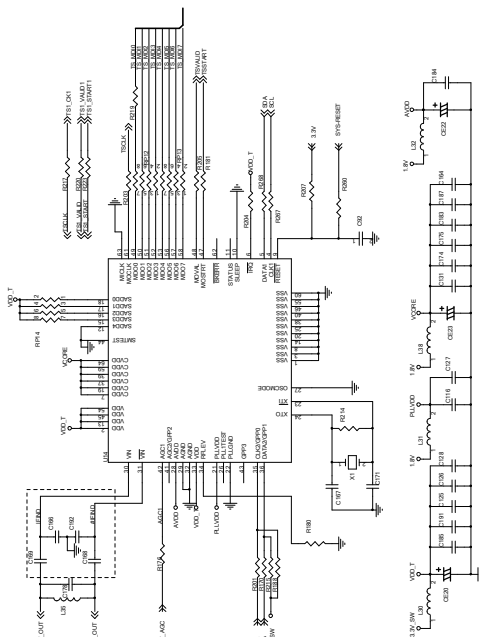
# CIRCUIT DIAGRAM



NO.	REV.	DATE	BY	CHKD.	APP.
1	1.0	2023-01-01	1	1	1

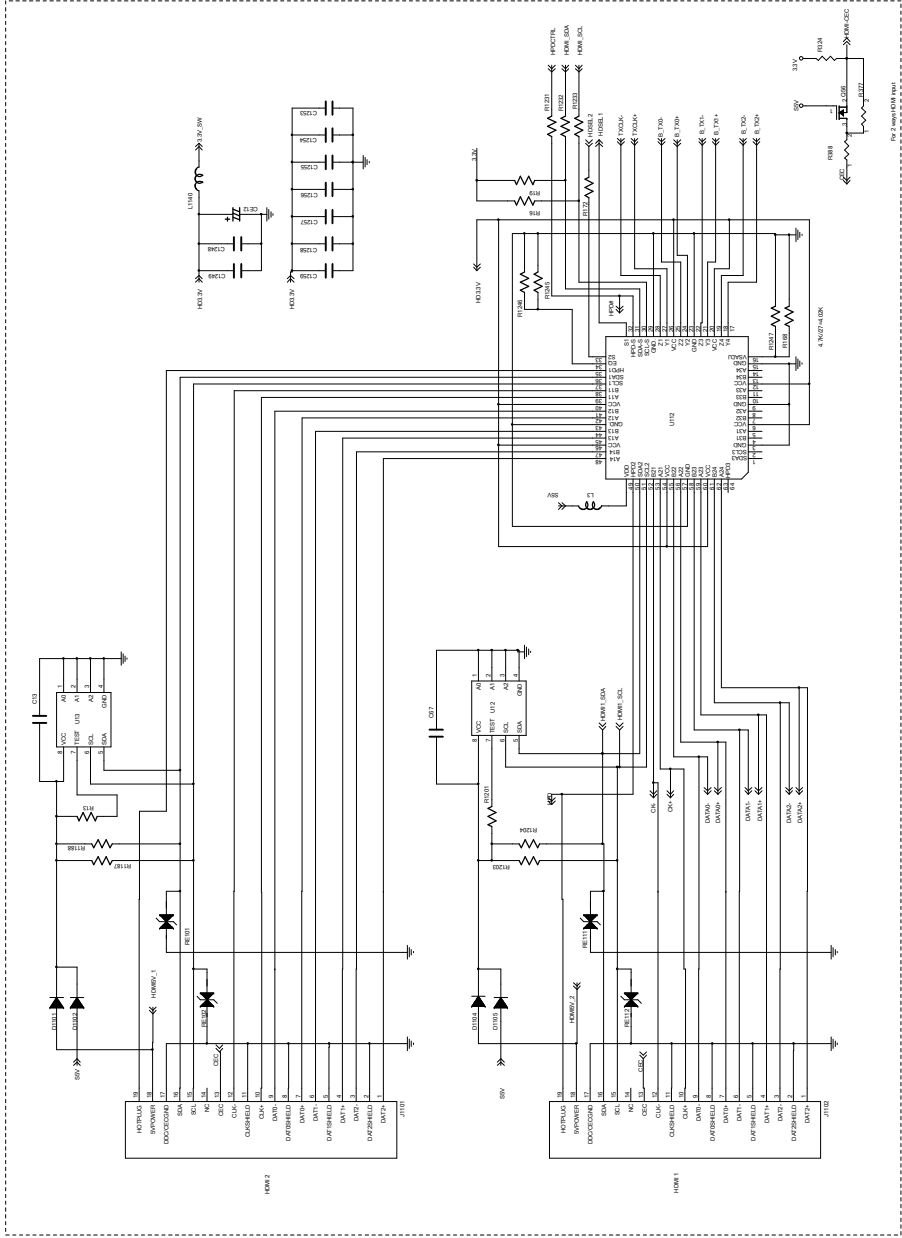
FORESEE TECHNOLOGY





For DVB-T antenna Power supply

For DVB-T antenna Power supply





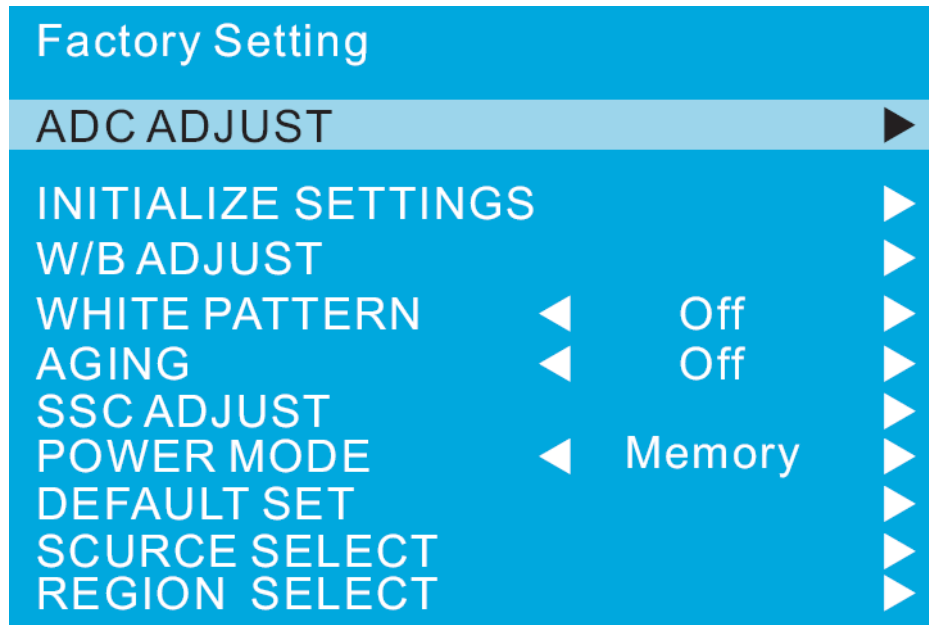




# FACTORY MODE&ADJUSTMENT

Press [GREEN] button on the remote control to appear an OSD MENU and then press [OK] button for about 5 seconds. The Factory setting menu will appear on screen. You can exit setting by pressing [EXIT] button.

The Factory menu is as below picture:



Let' s comprehend every item function.

ADC ADJUST		
Mode	:	RGB
R-GAIN	:	117
R-GAIN	:	121
R-GAIN	:	119
R-OFFSET	:	131
R-OFFSET	:	145
R-OFFSET	:	123
AUTO ADC		

Options		
Item	Value	Description
ADC ADJUST		

Mode	RGB	Picture White balance adjustment
R-GAIN	117	
G-GAIN	121	
B-GAIN	119	
R-OFFSET	131	
G-OFFSET	145	
B-OFFSET	123	
AUTO ADC	Start	Press [OK] button to confirm your choice and the image will adjust itself until success.

INITIALIZE SETTINGS		
Panel Type	◀CMO2160B1-L01▶	
Hotel Mode	◀	Off ▶
Hotel Vol Limit	◀	30 ▶
Power On Scurce	◀	Memory ▶
AGC Set	◀	4 ▶
Welccrne Message	◀	Off ▶
Key Lock	◀	Off ▶
Teletext Lock	◀	Off ▶
ATV Program	◀	Off ▶
DTV Program	◀	Off ▶
Power On Volume	◀	Off ▶
Slow Commutation	◀	Normal ▶

Options		
Item	Value	Description
INITIALIZE SETTINGS		
Panel Type	LC420WXN-SAA1	To select different Panel Type by pressing[◀/▶] button.
Hotel Mode	Off	To select Hotel Mode ON/OFF
Hotel Vol Limit	30	To setup max volume on Hotel Mode
Power on source	Memory	To select Power on source mode
AGC Set	4	To setup AGC value
Welcome Message	Off	To select Welcome Message ON/OFF
key lock	Off	To select key lock ON/OFF
Teletext lock	Off	To select Teletext lock ON/OFF

ATV Program	Off	To select ATV program number or OFF
DTV Program	Off	To select DTV program number or OFF
Power on volume	Off	To setup volume value when TV power on
Slow commutation	Normal	To select Slow commutation mode

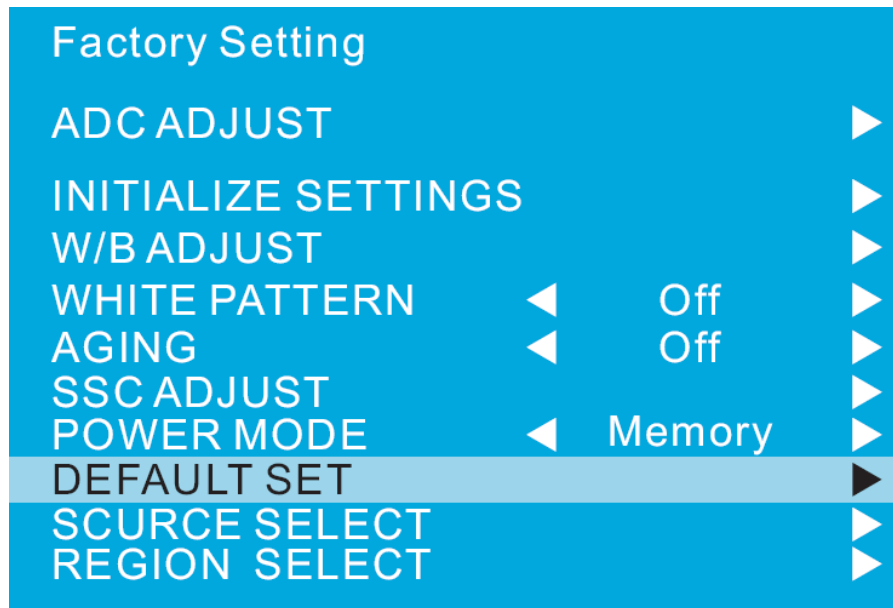
## W/B ADJUST

Mode	:	ATV
TEMPERATURE	:	Standard
R-GAIN	:	117
G-GAIN	:	116
B-GAIN	:	128
R-OFFSET	:	128
G-OFFSET	:	128
B-OFFSET	:	128
COPY ALL		

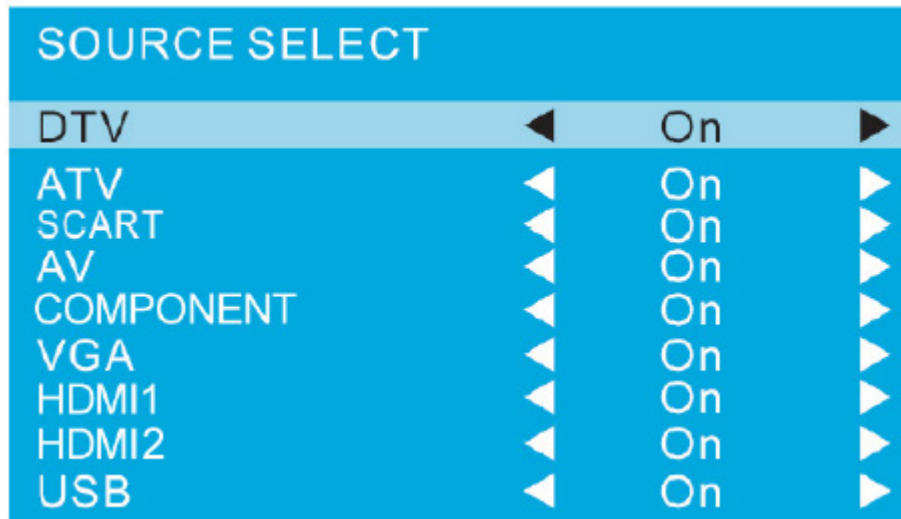
Options		
Item	Value	Description
<b>W/B ADJUST</b>		
Mode	AV	To select every source
TEMPERATURE	Standard	To select color temperature' s mode
R-GAIN	120	Picture color temperature adjustment
G-GAIN	117	
B-GAIN	122	
R-OFFSET	128	
G-OFFSET	128	
B-OFFSET	128	
COPY ALL		To copy current value for other source
<b>WHITE PATTERN</b>	Off	To select WHITE PATTERN on/off
<b>AGING</b>	Off	To select AGING on/off

SSC ADJUST		
SSC MIU	:	0n
MIU SPAN	:	100
MIU STEP	:	100
SSC LVDS	:	0n
LVDS SPAN	:	100
LVDS STEP	:	100

Options		
Item	Value	Description
SSC ADJUST		
SSU MIU	0n	To select SSU MIU on/off
MIU SPAN	200	To setup MIU SPAN value
MIU STEP	200	To setup MIU STEP value
SSC LVDS	0n	To select SSU LVDS on/off
LVDS SPAN	200	To setup LVDS SPAN value
LVDS STEP	200	To setup LVDS STEP value
<b>POWER MODE</b>	Memory	To select power mode: Memory, Standby, ForceOn



	Options	
Item	Value	Description
<b>DEFAULT SET</b>	To initialize NVM from ROM when selecting this option and pressing [OK] button to control	



	Options	
Item	Value	Description
<b>SOURCE SELECT</b>		
DTV	On	To select DTV source on/off
ATV	On	To select ATV source on/off
SCART	On	To select SCART1 source on/off

AV	On	To select AV source on/off
COMPONENT	On	To select COMPONENT source on/off
VGA	On	To select VGA source on/off
HDMI1	On	To select HDMI1 source on/off
HDMI2	On	To select HDMI2 source on/off



Options		
Item	Value	Description
<b>REGION SELECT</b>		
Region	UK	To select different Region
Subtitle Language	English	To select different Subtitle language
Audio Language	English	To select different Audio language
Language	English	To select different Language
Time Zone	London GMT	To select different Time zone

# TROUBLE SHOOTING

Please check for causes of problems in accordance with the following chart before contacting any maintenance personnel.

## DISPLAY TROUBLESHOOTING

Symptom	Causes and Correction
Black screen, power indicator light off	◆ Check whether power cord is well connected, and whether this unit is power on
	◆ Check whether the signal cord of input device is well connected ◆ Check whether input device is power on
Image display flicker, unstable	◆ Check whether the input device signal is in this unit's specification
	◆ Check computer output mode: control panel-display-setup ◆ If the setup does not accord with this unit's specification, please change the display setup
	◆ Hor scanning frequency: 30kHz ~75kHz ◆ Ver scanning frequency: 50 Hz~75Hz ◆ Max display mode: 15":1024X768@75 Hz

## SOUND AND TV TROUBLESHOOTING

Symptom	Causes and Correction
Cannot power on	◆ Please make sure the well connecting of power cord
No sound	◆ Please make sure the well connecting of audio cord
	◆ Check volume ◆
Volume too low	◆ Check volume
	◆ If volume is still too low when adjusting volume to maximum, please check whether the input device is well set
Snowy picture	◆ Input antenna damaged or not well connected
Remote control failure	◆ Check whether remote control battery used up
	◆ Whether battery installation is correct
	◆ Whether obstacles exist between remote control and the unit's receiving window
	◆ Check whether receiving window has strong light

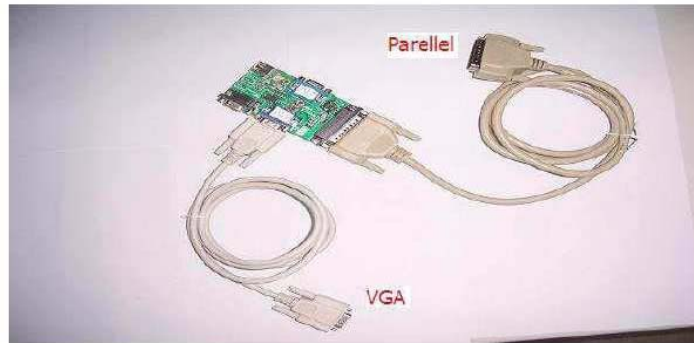
# Upgrade Software

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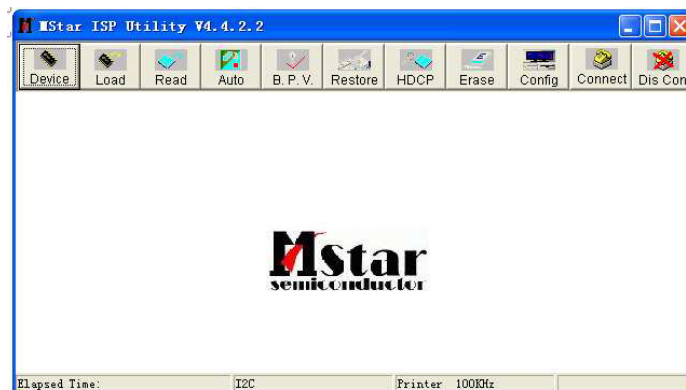
Tips: this software tool is used to upgrade the relevant model of MSD106 or MSD109 solution, so it is unnecessary to install. Open this software and then you may operate as follows:

## Operation steps:

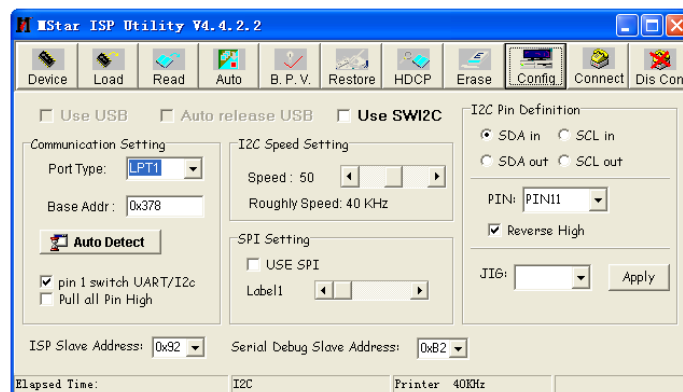
1. First connect the upgrade tool: the parallel line connect the PC parallel port, the VGA line connect the TV. The upgrade step as follows.



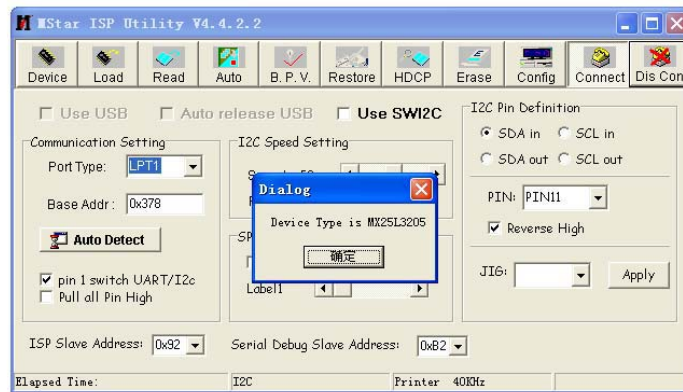
2. After opening Mstar ISP Utility V4.4.2.2 software, the following interface appears: Seen from this picture.



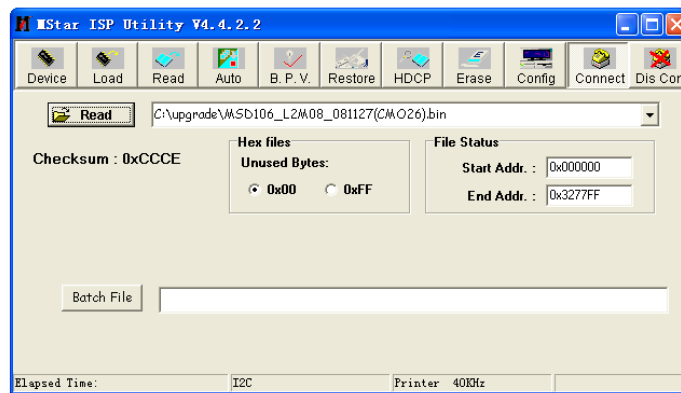
3. If it is the first time for you to use this software tool, please click the “Config” button, confirm whether the default configuration is correct. If not, please setup this configuration parameter.



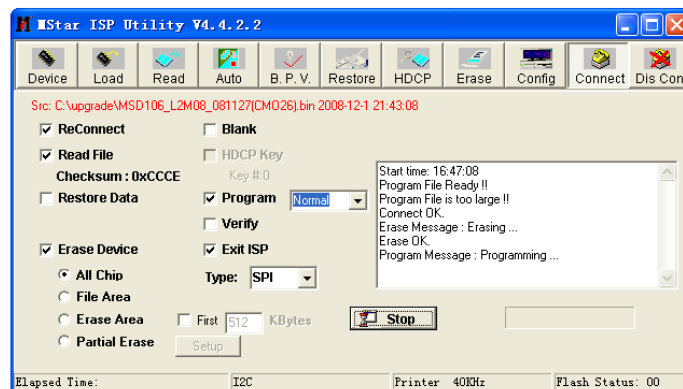
4. Please click the “Connect” button to connect device.



5. After connecting device, click “Read” button to read the files that need to upgrade.



6. After reading files, click “Auto” button and confirm the parameter is correct, if Ok, please click “Run” button to upgrade the software.



7. If the software update is not Ok, please click the “Run” button and upgrade the software again.