Technical Briefing

Feb 13,2006

ERAE ELECTRONICS R&D CENTER
Y.S.SHIN

■ Product Highlight

The major advanced features of this product are:
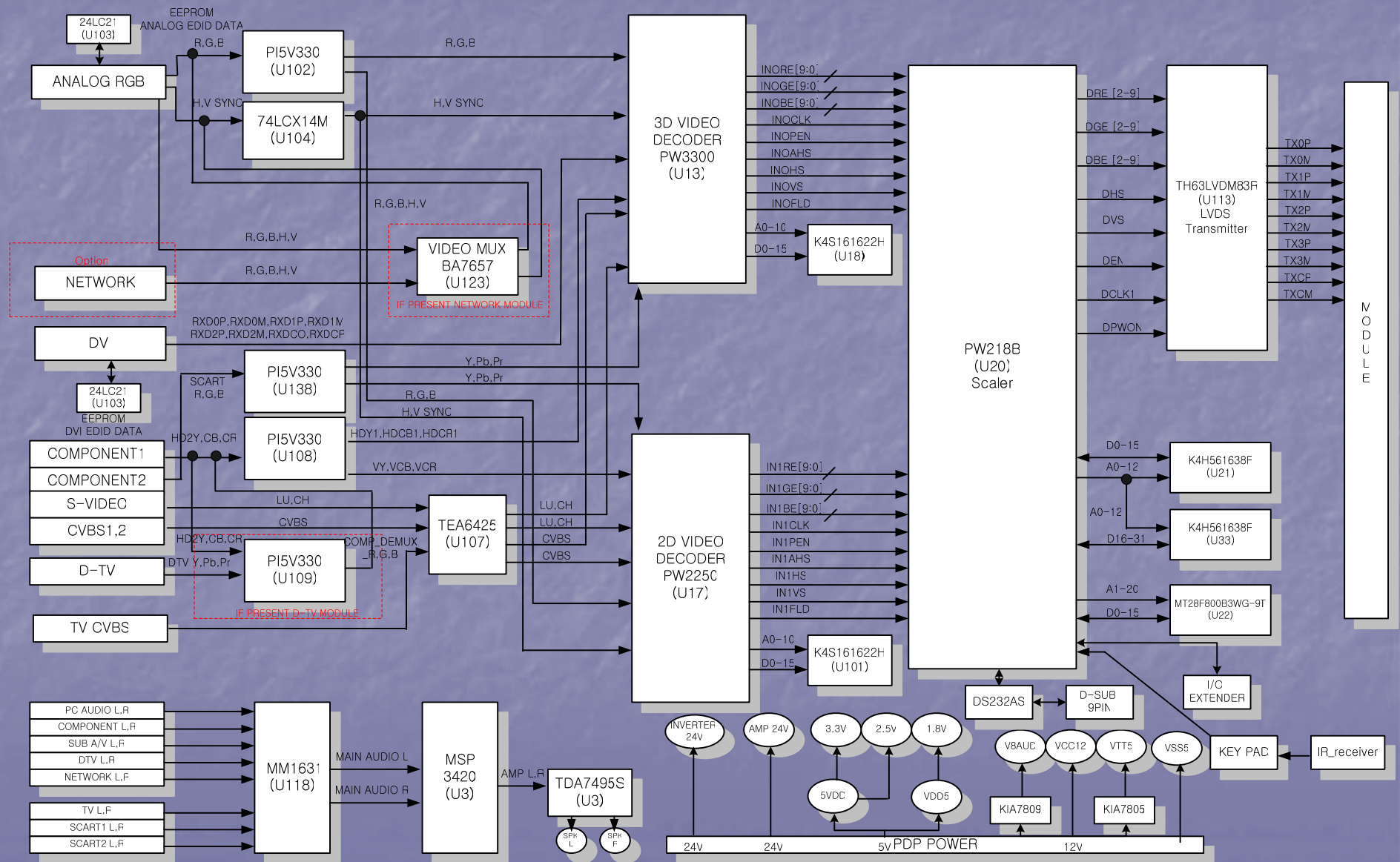
◆ 42-inch plasma display module with resolution of
   1024(H) X 768(V) Pixels (16:9).

◆ 1200 cd/m2 higher brightness and 8000:1(Typical)
   Contrast Ratio.

◆ Wide compatibility with 31~64KHz for horizontal
   scan

◆ Display Colors 16.77 million colors

◆ PIP (Picture in Picture) Function

◆ 160˚ Wide Viewing Angle.

◆ Video Support input system : NTSC-M ,480i~1080i

◆ Free Voltage support (AC 110V to 240V ,50/60 Hz)

■ BLOCK DIAGRAM

PDP TV BLOCK DIAGRAM(NTSC)

- **Application main Component.**

  - PW218B (Pixelworks) – SCALER
  - PW3300 (Pixelworks) – Video Decoder
  - PW2250 (Pixelworks) – Video Decoder
  - MSP3420(Micronas) – Sound Processor
  - FQ1236 (Philips) – Video Module
  - TDA7495S (ST) – Sound Amplifier

Main Component Brief
– PW218B(Scaler)

The PW218B ImageProcessor is a highly integrated "system-on-a-chip" that interfaces computer and video inputs in virtually any format to a pixel-based display.

Computer and video images from NTSC/PAL to WUXGA can be resized to fit on a fixed-frequency target display device, with any resolution up to 1080p. Features include scaling, spatial and temporal noise filters, PixelBoost™, Picture-in-Picture (PIP), Picture-Off-Picture (POP), alpha blending, motion-adaptive deinterlacing for inputs up to 1080i including film mode, V-Chip/CC/Teletext, OSD, and slow-speed, multi-purpose ADC.
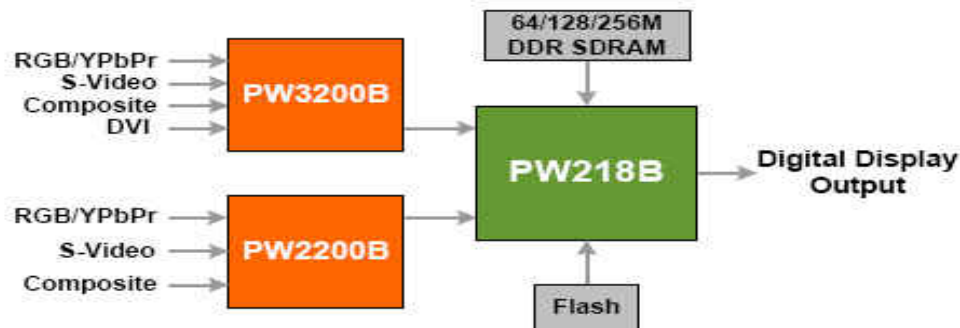
– PW3300(3D Video Decoder)

The PW3300 is a high-performance, multi-standard, 3D video decoder; DVI 1.0-compatible TMDS receiver; and a high-speed triple Analog-to-Digital Converter (ADC)—all on a single chip.

The analog interface supports resolutions up to 162 MHz. The PW3300 supports all HDTV, NTSC, PAL, and SECAM standards. Pixelworks' DNX™ technology in the PW3300 ensures the highest quality video, even in poor signal-to-noise conditions.

Input content
AnalogRGB ,DVI,COMPOSITE,
S-VIDEO,COMPONENT

– PW2250 (2D Video Decoder)

The PW2250 is a high-performance, multi-standard video decoder and a high-speed triple Analog-to-Digital Converter (ADC)—all on a single chip.

The analog interface supports resolutions up to 162 MHz. The video decoder supports all HDTV, NTSC, PAL, and SECAM standards. Pixelworks' DNX™ technology in the PW2250 ensures the highest quality video, even in poor signal-to-noise conditions.

Input content
AnalogRGB ,COMPOSITE,
S-VIDEO,COMPONENT

– MSP 3420G (Sound Processor)

Multistandard Sound Processor Family

Release Note: Revision bars indicate significant changes to the previous edition. The hardware and software description in this document is valid for the MSP 34x0G version C12 and following versions.

1. Introduction

The MSP 34x0G family of single-chip Multistandard Sound Processors covers the sound processing of all analog TV-Standards worldwide, as well as the NICAM digital sound standards. The full TV sound processing, starting with analog sound IF signal-in, down to processed analog AF-out, is performed on a single chip. Figure 1–1 shows a simplified functional block diagram of the MSP 34x0G.

These TV sound processing ICs now include versions for processing the multichannel television sound (MTS) signal conforming to the standard recommended by the Broadcast Television Systems Committee (BTSC). The DBX noise reduction, or alternatively, Micronas Noise Reduction (MNR) is performed alignment free.

Other processed standards are the Japanese FM-FM multiplex standard (EIA-J) and the FM Stereo Radio standard.

Current ICs have to perform adjustment procedures in order to achieve good stereo separation for BTSC and EIA-J. The MSP 34x0G has optimum stereo performance without any adjustments.

All MSP 34xxG versions are pin compatible to the MSP 34xxD. Only minor modifications are necessary to adapt a MSP 34xxD controlling software to the MSP 34xxG. The MSP 34x0G further simplifies controlling software. Standard selection requires a single I^2C transmission only.

The MSP 34x0G has built-in automatic functions: The IC is able to detect the actual sound standard automatically (Automatic Standard Detection). Furthermore, pilot levels and identification signals can be evaluated internally with subsequent switching between mono/stereo/bilingual; no I^2C interaction is necessary (Automatic Sound Selection).

The MSP 34x0G can handle very high FM deviations even in conjunction with NICAM processing. This is especially important for the introduction of NICAM in China.

The ICs are produced in submicron CMOS technology. The MSP 34x0G is available in the following packages: PSDIP64-1, PSDIP52-1/-2, PMQFP80-11, and PMQFP64-2.

– MSP 3420G BLOCK DIAGRAM
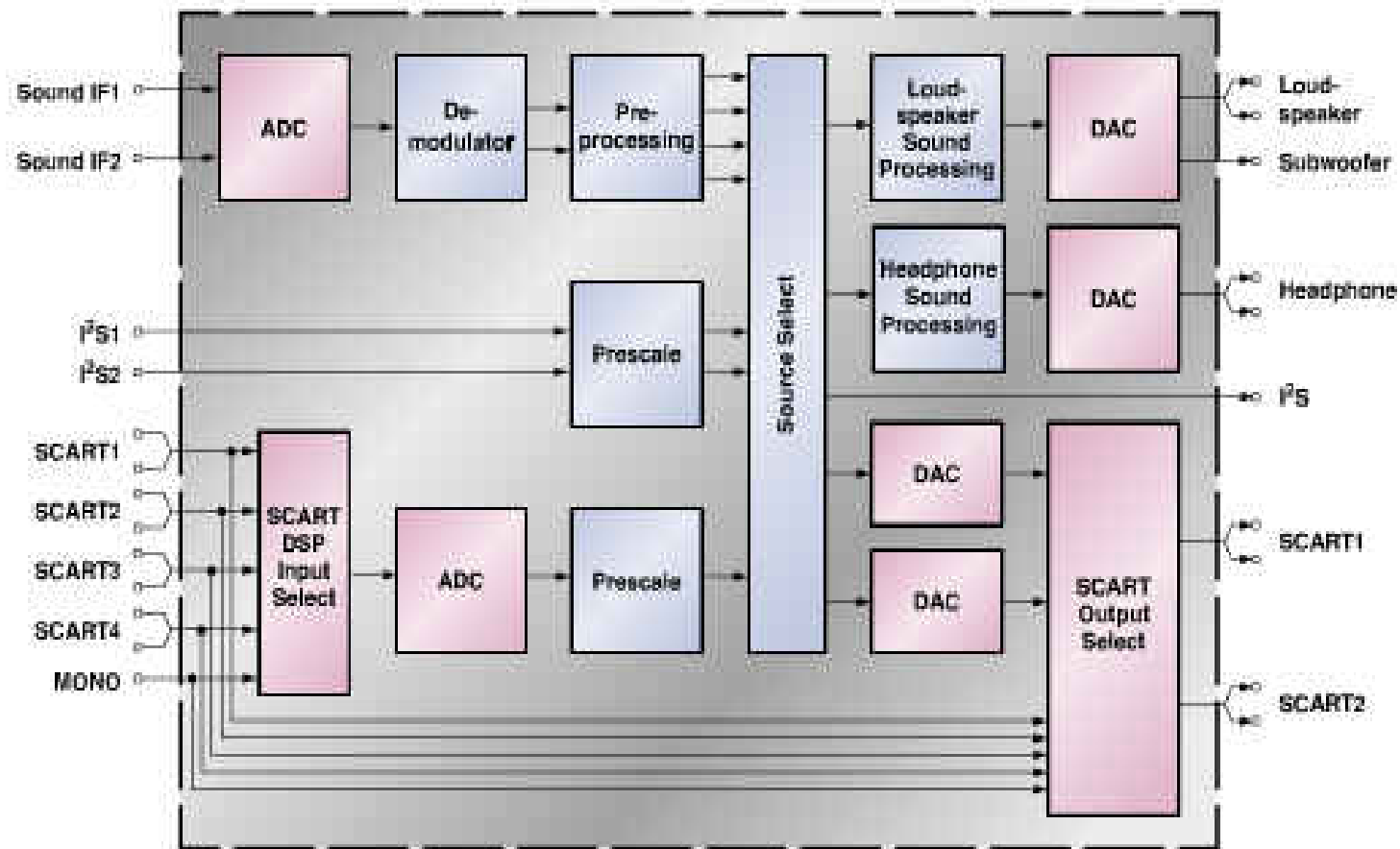
– FQ1236MK3 (Video Module)

FEATURES

- RTMA M /N system reception
- True 5 V device (low power dissipation)
- Quasi-Split Sound concept
- Full frequency range from channel A2 (55.25 MHz) to channel A69 (801.25 MHz)
- PLL controlled tuning
- Programmable PLL step size (31.25 / 50 kHz or 62.5 kHz)
- True-synchronous vision IF demodulator (PLL)
- Ultra linear FM PLL demodulator
- Demodulated video output, AF/MPX sound output, second IF sound output.
- I^2C-bus control of tuning, address selection, AFC status information
- Complies with FCC sub-part 15 (b)
- Small horizontally mounted metal 70 mm housing

– TDA7495S (Sound Amplifier)

11W+11W AMPLIFIER

- 11+11W OUTPUT POWER
  $R_L = 8\Omega$ @THD = 10% V_{CC} = 28V
- ST-BY AND MUTE FUNCTIONS
- LOW TURN-ON TURN-OFF POP NOISE
- NO BOUCHEROT CELL
- NO ST-BY RC INPUT NETWORK
- SINGLE SUPPLY RANGING UP TO 35V
- SHORT CIRCUIT PROTECTION
- THERMAL OVERLOAD PROTECTION
- INTERNALLY FIXED GAIN
- SOFT CLIPPING
- MULTIWATT 15 PACKAGE

DESCRIPTION

The TDA7495S is a stereo 11+11W class AB power amplifier assembled in the @ Multiwatt 15 package, specially designed for high quality sound, TV applications.

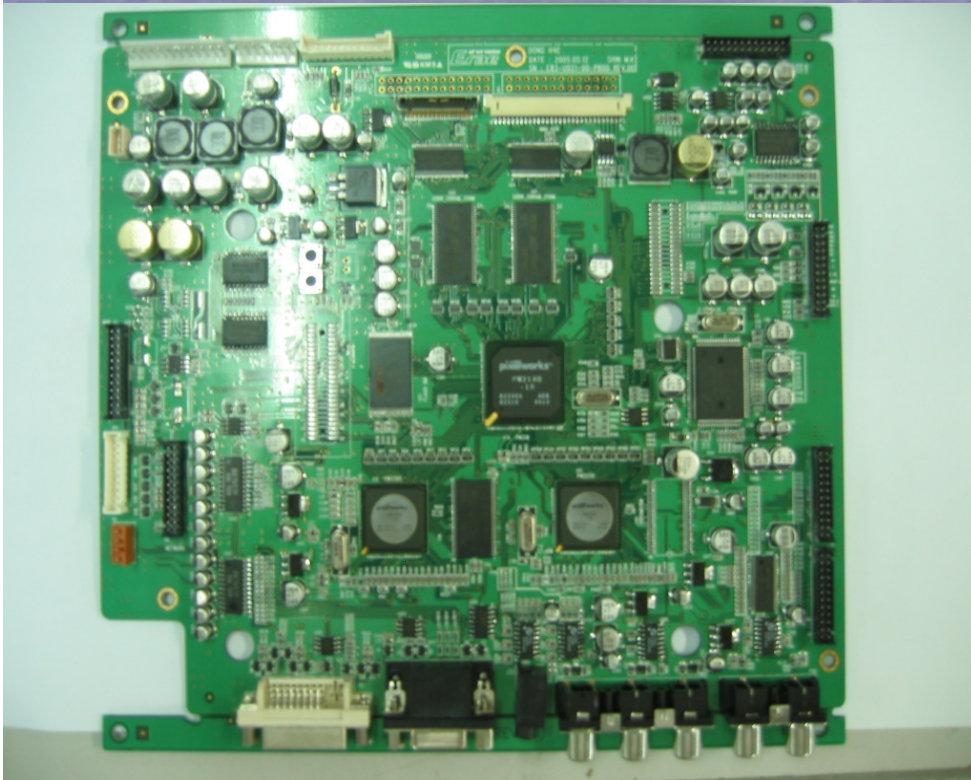**MULTIPOWER BI50II TECHNOLOGY**
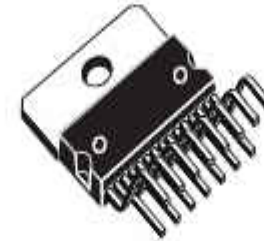
Multiwatt15

ORDERING NUMBER: TDA7495S

Features of the TDA7495S include linearStand-by and mute functions.

Main, Tuner Board Preview

MAIN B/D

Tuner B/D

I/O Content Concept

Analog RGB

Digital RGB

CVBS 1,2

COMPONENT 1,2

S-VIDEO

TV

EXTERNAL AUDIO SOUND

PC AUDIO SOUND

COMPONENT1,2 AUDIO SOUND

CVBS1,2 AUDIO SOUND

- **Circuit flow explanation(Brief)**

  Analog RGB

  - D SUB 15P Terminal (R,G,B Signal and H,V SYNC)

    ->R,G,B Signal get in Mux IC(PI5V330) and H,V SYNC get in Schmitt Trigger IC 7414 ->Two component pass through R,G,B,H,V Signal get in PW3300 and PW2250 -> This signal convert with Digital -> This signal get in scaler IC PW218B ->This Scaling signal get in LVDS Transmitter IC TH63LVDM83R -> This signal send with the panel.

Digital RGB

- DVI Terminal (Digital signal)-> The signal get in
  PW3300-> This signal get in scaler IC PW218B
  ->This Scaling signal get in LVDS Transmitter IC
  TH63LVDM83R -> This signal send with the panel.

COMPONENT

- RCA Terminal (Y,Pb,Pr signal)-> The signal
  get in Mux IC (PI5V330) ->This component
  pass through Y,Pb,Pr get in PW3300 and
  PW2250 ->This signal get in scaler IC PW218B
  ->This Scaling signal get in LVDS Transmitter IC
  TH63LVDM83R -> This signal send with the panel.
(Mux IC Change part Block Diagram reference.)

COMPOSITE

- RCA Terminal (CVBS Signal) -> The Signal get in Mux IC TEA6425. ->The component pass through CVBS get in PW3300 and PW2250 ->This signal get in scaler IC PW218B.

->This Scaling signal get in LVDS Transmitter IC TH63LVDM83R -> This signal send with the panel.

(Mux IC Change part Block Diagram reference.)

S-VIDEO

- Din Terminal (Y,C Signal) -> The Signal get in Mux IC TEA6425.->The component pass through Y,C get in PW3300 and PW2250 ->This signal get in scaler IC PW218B ->The Scaling signal get in LVDS Transmitter IC TH63LVDM83R -> The signal send with the panel.

  (Mux IC Change part Block Diagram reference.)

TV(NTSC)

- ANT Terminal (RF Signal) -> The Signal get in Video Module(FQ1236) -> TV CVBS signal get in Mux IC (TEA6425) ->The component pass through CVBS get in PW3300 and PW2250 ->The signal get in scaler IC PW218B ->The Scaling signal get in LVDS Transmitter IC TH63LVDM83R -> The signal send with the panel.

(Mux IC Change part Block Diagram reference.)

SOUND

- Analog/Digital RGB,COMPONET,CVBS,S-VHS,,TV Sound Signal

- The sound signal get in Mux IC. (MM1631) ->The component pass through sound signal get in Sound processor.(MSP3420G)->This signal get in Sound Amplifier(TDA7495S)-> This signal send with the speaker.(8ohm /10W)

– THE END –