

1 General Description

1.1 Introduction

WSC2800 series is an advanced video format converter, which converts digital inputs into multiple formats. The series has two members. WSC2800 converts into analog output (CVBS and RGB). WSC2810 outputs digital forms (RGB and YUV). The series supports a wide range of configurable formats, with both SD (standard definition) and HD (high definition) input supported. So that, the series can be applied to many high-speed and high-quality video conversion applications

1.2 Features

Input Format

- 24-bit interface in total
- 24/16-bit ITU-R601/709 YUV/YCrCb
- 24/16-bit ITU-R601/709 YPrPb
- 8/16-bit ITU-R656/709 YCrCb
- 24-bit RGB
- Pixel sample rate up to 165M pixels/sec
- Input video format auto detection
- Input clock phase correction
- ATSC format support
- Support up to 1600x1200@60Hz (UXGA)
- Non-standard input formats supported

Display Format

- 18/24 bit RGB/YUV digital output^{*1}
- ITU-R BT.656 output^{*1}
- Support Sync-on-channel mode output (YPBPR / RGB and Analog)
- 10-bit DAC embedded, support analog output^{*2}
- Resolution up to UXGA (1600x1200) and 1080p (1920x1080)^{*3}
- Dither reduction^{*1}
- Line frequency enhancement
- Support user-defined format
- Programmable timing signal (sync and DE)

Processing Features

- Programmable color space conversion (sRGB, ITU-R BT.709 YUV/YPbPr, ITU-R BT.601 YUV/YCbCr)
- 8bit gamma LUT
- CTI / LTI
- BCHS (brightness, contrast, hue, saturation)
- White / black / blue expanding
- White balance adjustment
- Color temperature correction
- 3D Motion-adaptive color collusion elimination
- 3D Motion-adaptive white noise reduction
- Peak / White noise reduction
- Frame rate conversion
- Improved motion-based de-interlacing
- De-interlace support NTSC / PAL / SECAM / 1080I
- Film mode (3:2/2:2 pull down) auto-optimizing for NTSC / PAL / 1080I
- Auto-switching between film mode and de-interlace

- Support multi-region, non-linear scalar
 - Poly-phase programmable scalar filter
 - Muti-window (4, 9, 16)
 - Conversion between 4:3 and 16:9 aspects
 - Zoom and panning for user-defined area
 - Muti-region keystone correction
 - Interlace scalar phase correction
- 16-bit DDR SDRAM memory address up to 32M byte (32M x 16bit)
 - Memory clock speed up to 200 MHz (T.B.D.)

*¹ Available in WSC2810 only

*² Available in WSC2800 only

*³ For analog output, consider of the panel limitation, digital output will be up to 1366x768

1.3 System Block Diagram

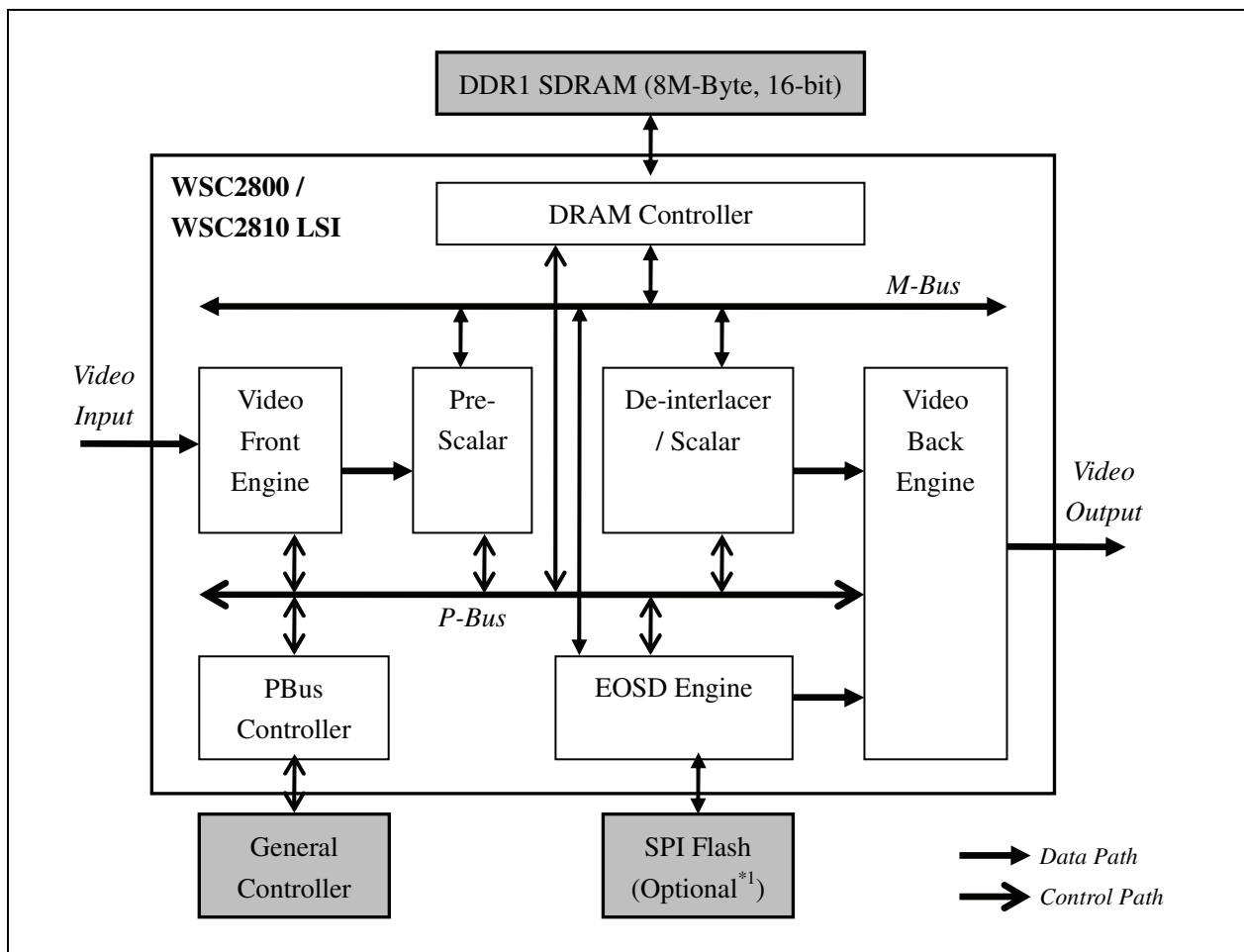
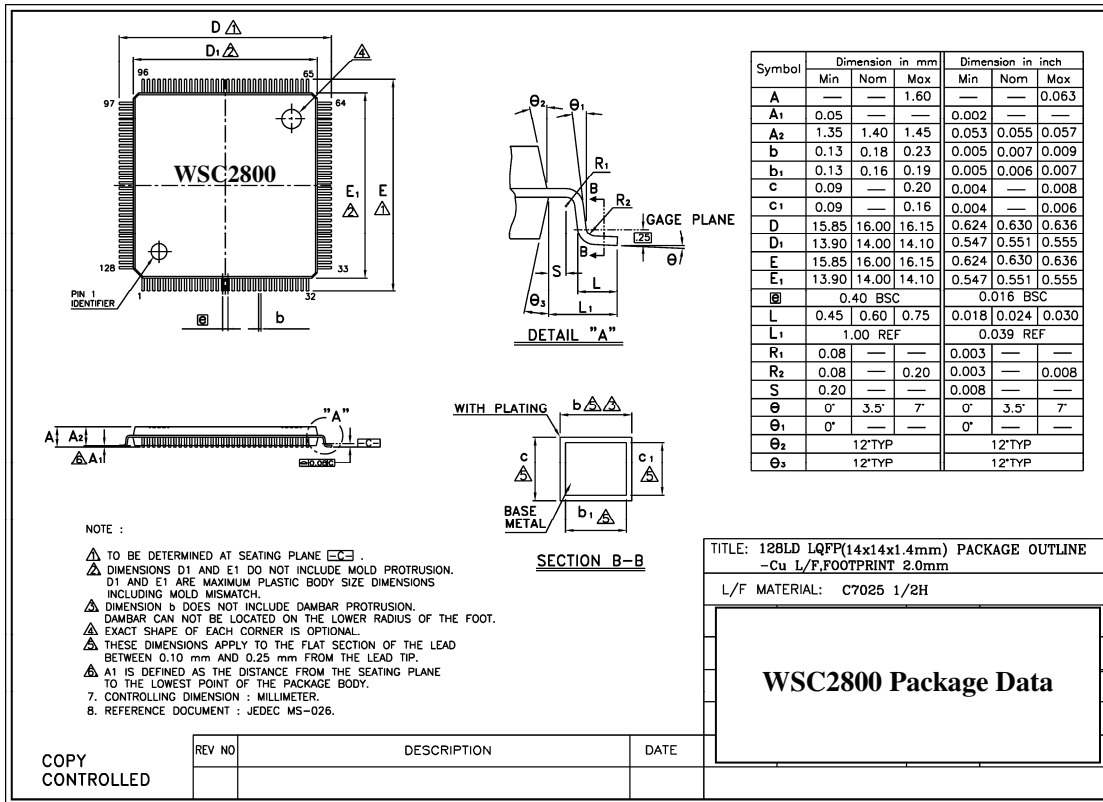


Figure 1-1 System Block Diagram

*¹ Refer to Chapter 5 OSD Engine for details.

1.4 Package

WSC2800: LQFP-128 (14mm x 14mm, 0.40mm pitch)



WSC2810: QFP-160 (28mm x 28mm, 0.65mm pitch)

