

NV320P Video Enhancement Processor

1.0 Introduction

The NV320P is a single-chip, programmable video display processor providing advanced features for progressive scan, high frame-rate TV. It offers the following features.

1.1 Highly Integrated Video Processor

- Three, on-chip, 10-bit Digital-to-Analog Converters (DACs)
- Built-in memory controller supporting SDRAM or SGRAM
- 0.35 μ CMOS process
- 3.3V power supply with 5V tolerant I/Os
- Standard 208-pin PQFP

1.2 Video Input

- Multiple video input modes
 - Data acquisition mode
 - Line-locked mode
 - DVD mode
- Multiple video input data formats
 - Digital 16-bit YUV (4:2:2) or 12-bit YUV (4:1:1)
 - Digital 8-bit YUV (ITU-R 656)
 - Digital 24-bit YUV (4:4:4)

1.3 Noise Reduction

- Motion adaptive noise reduction filter

1.4 Color Processing

- Built-in color space conversion
- Selectable output color space: YUV or RGB

1.5 Video Processing

- Advanced, non-linear video processing
- Motion compensated deinterlacing
- Programmable peaking
- Non-linear interpolation
- Background coloring
- Anti-flickering circuitry
- NTSC/PAL to SDTV 480p format conversion
- Frame rate up-conversion (50Hz up to 75Hz for PAL, 60Hz up to 90Hz for NTSC)

1.6 Host Interface

- I²C interface
- No programming needed for default mode application

2.0 General Description and Applications

The NV320P is a single chip digital video processor for progressive and digital TV applications. It provides high quality video processing including video noise reduction, motion compensation, sharpness enhancement, and resolution enhancement. It also provides frame rate conversion and progressive scan conversion with deinterlacing.

The NV320P is a CMOS mixed signal circuit highly integrated with three, 10-bit digital-to-analog converters controlled by the I²C interface. The NV320P accepts 16-bit YUV (4:2:2), 12-bit YUV (4:1:1), and 8-bit YUV (ITU-R 656) simultaneously, or it accepts 24-bit YUV (4:4:4) input from a front-end digital video color decoder or from an analog-to-digital converter. Additionally, NV320P supports multiple video input modes: acquisition mode, line-locked mode, and DVD mode.

Applications for the NV320P chip are listed here.

- Progressive scan televisions
- Digital televisions (the chip is DTV/HDTV ready)
- Internet televisions
- Home theater and multimedia televisions
- Video conferencing

3.0 Ordering Information

| | |
|--------------------|--------------------------------------|
| Part Number | NV320P |
| Package | PQFP 208 |
| Description | Plastic quad flat package, 208 leads |
| Version | 1.0 |

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