

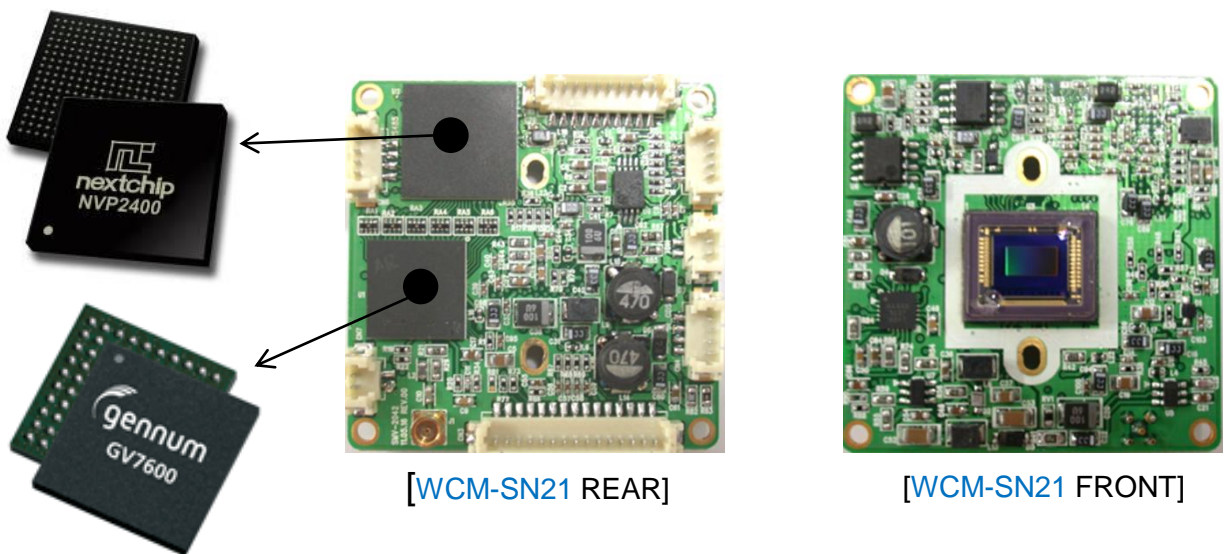
## [NEXT - NVP2400]

The NVP2400 is a cost-effective and high performance CMOS sensor ISP(Image Signal Processor) for IP network cameras, HD-SDI cameras and high-end analog CCTV applications. It includes fast 8-bits 8051 MCU to control ISP functions such as AE/AWB. It also contains SDRAM, kind of SiP for such functions as 3D-NR, D-zoom, FRC and OSD operations.

The NVP2400 can receive 12-bits parallel or sub-LVDS CMOS sensor input and provides BT.656, BT.1120, YC 16-bits and composite video as output. In particular, it can support high resolution analog CVBS output from the high sensitivity mega pixel CMOS sensor, which can cope with conventional high-end analog security camera application. It supports not only various IP camera interfaces but also HD-SDI interface standards.

The NVP2400's image signal processor including 3A (AE/AWB/AF) and enhancement functions ensures stable and high quality images, making it suitable for a security camera.

It also offers many useful security camera functions such as high resolution digital zoom, PIP, Electronic PTZ, FRC, flicker suppression, HLC/BLC, privacy zone masking, motion detection, IRIS control I/F and OSD.



[WCM-SN21 REAR]

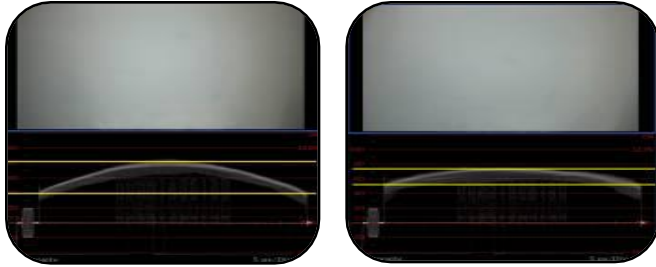
[WCM-SN21 FRONT]

## [gennum – GV7600]

The GV7600 is a serial digital video transmitter for standard and high definition component video. With integrated cable driving technology, the GV7600 is capable of transmitting digital video at 270Mb/s, 1.485Gb/s and 2.97Gb/s over 75Ω coaxial cable. The device provides a complete transmit solution for the transmission of both interlaced and progressive component digital video, up to 1920 x 1080, in coaxial cable-based video systems. Using the GV7600 with the complete Avia transmitter reference design, it is possible to implement an all-digital, bi-directional multimedia interface over coax. This interface allows both DC power and a bi-directional, half-duplex, auxiliary data interface, up to 1Mb/s, to be carried over the same single, robust and cost effective coaxial cable as the high-speed serial digital video. The GV7600 includes a broad range of user-selectable processing features, such as Timing Reference Signal (TRS) insertion, illegal code word re-mapping, and ancillary data packet insertion. The content of ancillary data packets can be programmed via the host interface. Device configuration and status reporting is accomplished via the Gennum Serial Peripheral Interface (GSPI). Alternatively, many processing features and operational modes can be configured directly through external pin settings. The device supports both 8-bit, 10-bit and 12-bit video data input, for RGB or YCbCr 4:4:4, and YCbCr 4:2:2 or 4:2:0. A configurable 20-bit wide parallel digital video input bus is provided, with associated pixel clock and timing signal inputs. The GV7600 supports direct interfacing of ITU-R BT.656 SD formats, and HD formats conforming to ITU-R BT.709 and BT.1120-6 for 1125-line formats, and SMPTE 296M for 750-line formats. The device may also be configured to accept CEA-861 timing. The GV7600 audio embedding function allows the carriage of up to 8 channels of serial digital audio within the ancillary data space of the video data stream. The input audio signal formats supported by the device include AES/EBU for professional applications, S/PDIF, and I2S. GV7600 Avia™ Transmitter Data Sheet 51686 - 7 March 2010 2 of 119 Proprietary & Confidential 16-bit, 20-bit and 24-bit audio formats are supported at 48kHz synchronous-to-video for SD video formats and 48kHz synchronous or asynchronous for HD formats. Additional audio processing features include: individual channel enabling, audio group selection, group replacement, channel swapping and audio channel status insertion. The GV7600 supports an Asynchronous Serial Interface (ASI), to carry compressed audio and video transport streams, conforming to IEC 13818-1, at 270Mb/s. Transport stream data is input to the device at a synchronous 27MHz clock rate. The device will automatically 8b/10b encode the data, prior to serialization. Packaged in a space saving 100-BGA, the GV7600 is ideal for designs where high-density component placement is required. Typically requiring only 400mW power, the device can be used as a high bandwidth alternative to analog composite or component video interfaces, providing a high quality, all-digital, long reach video transmit solution.

# Main Feature

## 1. LSC(Lens Shading Correction)

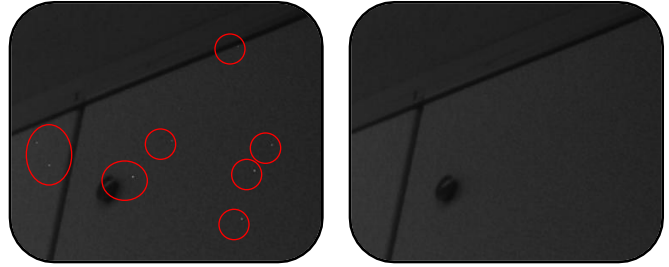


[Vignetting Image]

[Lens Shading Correction Image]

In general, the shorter the lens' focus, the bigger the difference in the incidence angle of the lights between the central and peripheral pixel. This results in the phenomenon where the image gets blurred on the periphery, which is called Lens Vignetting or Lens Shading. This Lens Shading Correction (LSC) corrects the phenomenon where the image gets darkened or blurred on the periphery.

## 5. DPC(Dead Pixel Correction)



[Dead Pixel]

[Dead Pixel Correction]

Sensors could have defects for something wrong in the process of their storage or manufacturing process. Such defects are called dead pixels, which consist of two types: static dead pixel and dynamic dead pixel. The first can be found from the beginning while the second is found over time after using sensors for a certain period of time. Dynamic dead pixels may not be visible on the screen of ordinary illumination. However, they can be made visible by amplifying the analog / digital gain.

## 2. DEFOG



[Original Image]

[DEFOG ON]

Images in extraordinary environment such as fog or rain or in a very strong luminous intensity have DR (dynamic range), lower than ordinary images. NVP2400 has a contrast-based defog function, which is used to overcome such shortcoming.

## 6. ACCE(Adaptive Contrast & Color Enhancement)



[Original Image]

[ACCE ON]

ACCE (Adaptive Contrast and Color Enhancement) block performs an image enhancement processing to enhance visibility of an image by changing the brightness values to the level that people can recognize the change.

This function is offered based on the basic feature of the human eye sights, which are more sensitive to the changes in the areas with high brightness level than those with low brightness values. This processing technique is equivalent to the dynamic range reduction technique, which converts the HDR (High Dynamic Range) into the restricted LDR (Low Dynamic Range). This dynamic range reduction technique is one of the WDR (Wide Dynamic Range) technologies. Through this, the contrast ratio of the image can be effectively expressed and the edge information can be improved in order to enhance the overall visibility of the image.

## 3. NR (Noise Reduction)

Noise Reduction (NR) is used in order to obtain a high quality output image and enhance compression efficiency. NVP2400 offers Edge Preserving 2D NR and Motion Adaptive 3D NR

## 4. D-ZOOM & PIP

NVP2400 offers Digital Zoom and PIP function. Zoom can be from x2 to x64 and in the case of PIP, it can be from 1/9 to 1/16.

