Technical Specification: Cy-visor DH-4400

Core Specifications

- VGA/SVGA/NTSC/PAL/S-VHS input capability
- SVGA high resolution display output
- 0.49-inch, 1.44 million dots reflective MicroDisplay
- Simulates dynamic 44-inch screen as viewed at 2m
- 25mm eye relief
- ± 31.2 ° degree diagonal FOV
- 13mm exit pupil

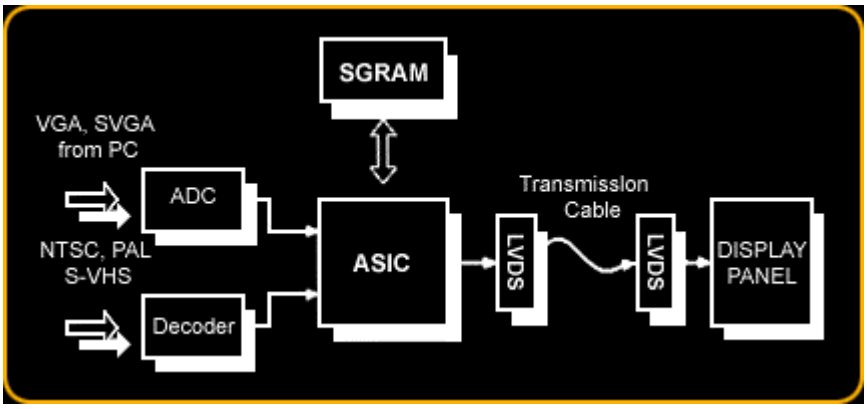
Input Signal

	Display Mode	Resolution(pixel)	Horizontal Freq.(KHz)	Vertical Freq.(hz)
PC	VGA graphic	640 × 480	31.5	60
	VGA text	640 × 480	31.5	70
	VESA SVGA(60HZ)	800 × 600	37.9	60
	VESA SVGA(72HZ)	800 × 600	48.1	72
	VESA SVGA(75HZ)	800 × 600	46.9	75
Video	NTSC	All Formats		
	PAL	All Formats		
	SVHS	All Formats		

Output Signal

	Resolution (pixel)	Vertical Freq. (Hz)
Output	800 × 600	70

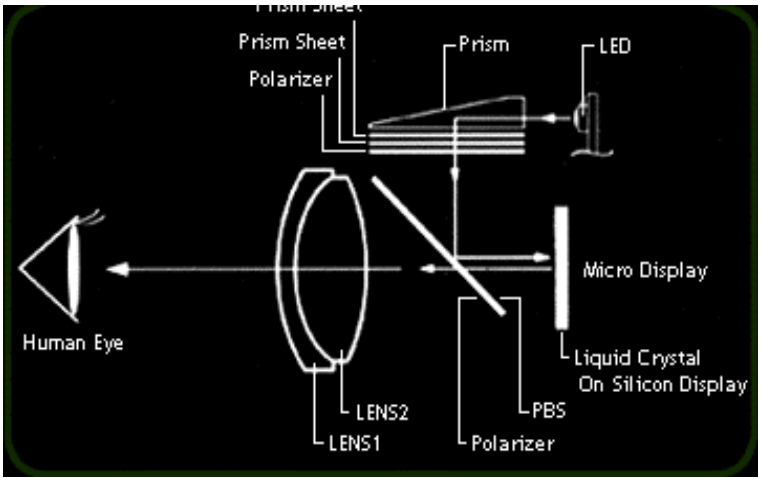
System Block Diagram



Specification

MODEL	DH_4400
Signal System	VGA/SVGA/NTSC/PAL/S-VHS
LCD	0.49-inch 1 .44 million dot microdisplay
Dot Number/panel	800(H) × 600(V) × RGB
Virtual Image Size	44-inch at 2m
Viewing Angle	± 31.2° degree diagonal
Video Input	Y/C, Composite
PC Input	RGB
Control Functions	BRIGHTNESS CONTRAST COLOR VOLUME
Connectors	PC input D-sub 15PIN A/V input : Stereo Mini Jack
Power consumption	Approx. 3.3W(PC mode) Approx. 3W(AV mode)
Operating Temperature	10 ~ 50 °C
Storage Temperature	0 ~ 60 °C
Dimensions	Headset : 175mm(W)×225(D)×100(H) Controller : 58mm (W)×140(D)×45(H)
Weight	Headset : 160g Controller : 180g
Supplied Accessories	AC power adaptor AV. PC cables
Power	DC 9V

Optics



General

The DH-4400 display engine is a complete optical microdisplay module that is available to HMD developers who require a turnkey solution for developing compact display headsets. It provides a 31.2-degree diagonal field of view (FOV) with a microdisplay that provides SVGA resolution (800 × 600). The DH - 4400 provides viewing comfort with adjustable inter-pupillary distance (IPD) and comfortable eye relief. It can be directly connected to any computer with a VGA port.

ASIC Interface Solution

Device Description

- The "XS-FT1" is a single chip solution for interfacing to the MicroDisplay.
- It performs several functions including frame rate conversion, format conversion, de-interlacing and time-sequential conversion.
- Algorithm of format conversion is FreeScale based on user freely adjustable interpolation function.
- It provides good quality scaled imagery better than fixed-interpolation functions
- It can be used for various applications such as monocular and binocular headsets for mobile computing, entertainment, and industrial wearable computing.

Features

- Input frame rate: Any frame rate can be converted to output frame rate 70Hz
- Output signal: Standard VESA SVGA (V-freq. 70Hz) digital RGB & SYNC for LCD panel
- Programmable input and output timing parameter
- User adjustable interpolation function (FreeScale algorithm)
- De-interlacing algorithm based on Spatial Vector Correlation
- Convert spatial signal to time sequential format
- Operation speed up to 100Mhz
- RGB or YUV input selectable

Detailed Description

Format conversion

- Fully programmable input timing parameters
- Any input acceptable lower than VESA SVGA 75Hz
- User adjustable interpolation function seed data (FreeScale algorithm)
  Can adjust seed data for high image quality
- Parallel and pipelined processing for high performance
- Any size image convertible to SVGA 800 × 600 (Horizontal, Vertical)

Frame rate conversion

- Any frame rate can be converted to 70Hz (Down or Up)
- Frame rate conversion based on Keep & Drop algorithm
- Input window cropping (adjustable with parameters)
- 24-bit RGB or 16-bit YUV input selectable

De-interlacing

- Spatial Vector correlation algorithm
- NTSC / PAL interlaced TV signal converted to process image
- Real-time processing with pipelining

Time-sequential signal conversion

- Converts spatial signal to time sequential format
- High speed processing over 100Mhz
- Single chip solution for the MicroDisplay

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