

## Analog Multiplexer and Digital-to-Analog Converter Chip

### Description

The EM9038 enables the display of video (digital YCbCr) or graphics (analog RGB), making it ideal for applications requiring switching between two sources of data, such as MPEG video and VGA graphics.

Features include three high-speed 8-bit videoDACs, a high speed YCbCr to RGB color space converter, an analog multiplexer, three analog video output buffers, a digital output buffer for S/PDIF, a 27 MHz oscillator with integrated VCXO for fine tuning, and a fully programmable PLL.

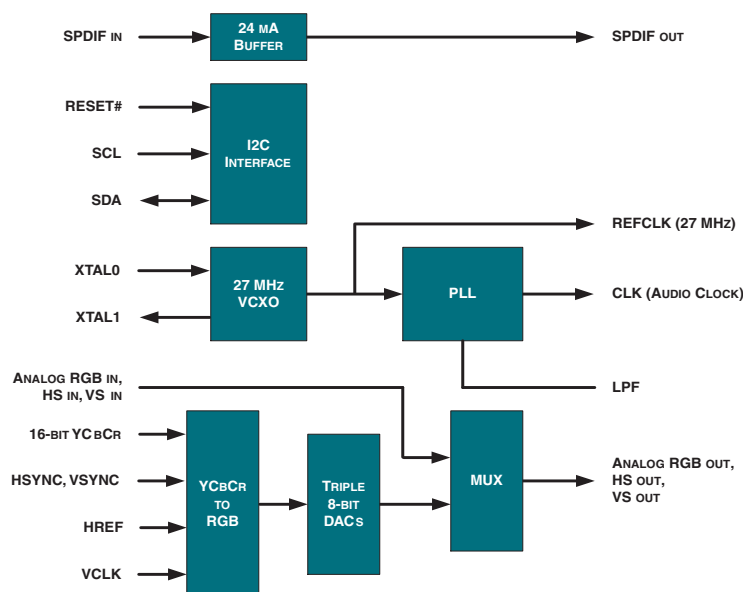
A 16-bit digital video input port supports 4:2:2 YCbCr video at up to 80 MHz. An internal color space converter translates the YCbCr video data to RGB before driving the three 8-bit videoDACs.

A high-bandwidth VGA pass-through mode allows support for high-resolution graphics modes without visible degradation.

### Features

- CCIR 601 4:2:2 16-bit YCbCr Input Format Support (up to 80 MHz)
- YCbCr to RGB Color Space Conversion
- Integrated Triple 8-bit VideoDACs with Buffers Support 16.8M Colors
- High-Bandwidth Analog RGB VGA Pass-through
- Internal 27 MHz Oscillator with Fine Frequency Tuning
- Internal Programmable Audio Clock Generation
- I2C Interface to Access Internal Registers
- +5V Power Supply, 64 -pin PQFP

### Block Diagram



Sigma Designs, Inc.

355 Fairview Way • Milpitas, CA, USA 95035 • Tel: 408.262.9003 • Fax: 408.957.9740  
www.sigmadesigns.com • sales@sigmadesigns.com

**SIGMA DESIGNS®**

Copyright © 2002 by Sigma Designs, Inc. All rights reserved. Sigma Designs, REALmagic and the REALmagic logo are either registered trademarks or trademarks of Sigma Designs, Inc. in the United States and/or other countries. All other trademarks or registered trademarks are the property of their respective owners.

Sigma Designs products are sold by description only. Sigma Designs reserves the right to make changes in circuit design and / or specifications at any time without notice. Accordingly, the reader is cautioned to verify that data sheets are current before placing orders. Information furnished by Sigma Designs is believed to be accurate and reliable. However, no responsibility is assumed by Sigma Designs or its subsidiaries for its use; nor for any infringements of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Sigma Designs or its subsidiaries.

---

## Sales Offices

### UNITED STATES

Sigma Designs, Inc.  
355 Fairview Way  
Milpitas, CA 95035  
+1 (408) 262-9003  
+1 (408) 957-9740 FAX

### JAPAN

Sigma Designs Japan  
4-16-8 Nakahara,  
Mitaka-shi,  
Tokyo 181-0005, Japan  
+81 422 79 3067  
+81 422 79 3067 FAX

### CHINA

Sigma Designs China  
Room C1, 32F  
Electronic Science & Technology Building (Phase 2)  
30 Shennan Road Central  
Shenzhen, PRC  
Postcode 518031  
+86 755 3683878  
+86 755 3683873 FAX

### KOREA

Sigma Designs Korea  
# 801, Dongil Techno Tower B/D  
Kuro-dong, Kuro-gu,  
Seoul, Korea  
+82 11 288 0406  
+82 2 3281 2034 FAX

### EUROPE

Sigma Designs, Inc.  
49, Rue des Moissonneurs  
Brussels, Belgium 1040  
+32 496 501234  
+32 234 72260 FAX

### TAIWAN

Sigma Designs Taiwan  
Far East World Center, C Tower  
8F-8, No. 79, Sec. 1  
Hsin Tai Wu Road  
Hsichih, Taipei Hsien  
Taiwan, R.O.C.  
+886 2 2698 2066  
+886 2 2698 2099 FAX

### HONG KONG

Sigma Designs (Asia) Ltd.  
Unit 1516, Tower 1, Metroplaza  
223 Hing Fong Road  
Kwai Fong, N.T.  
Hong Kong  
+852 2401 7388  
+852 2610 2177 FAX

Revision Date: February 11, 2002

---

### Sigma Designs, Inc.

355 Fairview Way • Milpitas, CA, USA 95035 • Tel: 408.262.9003 • Fax: 408.957.9740  
www.sigmadesigns.com • sales@sigmadesigns.com