S1D13771 TV-Out Graphics Engine

August 2007

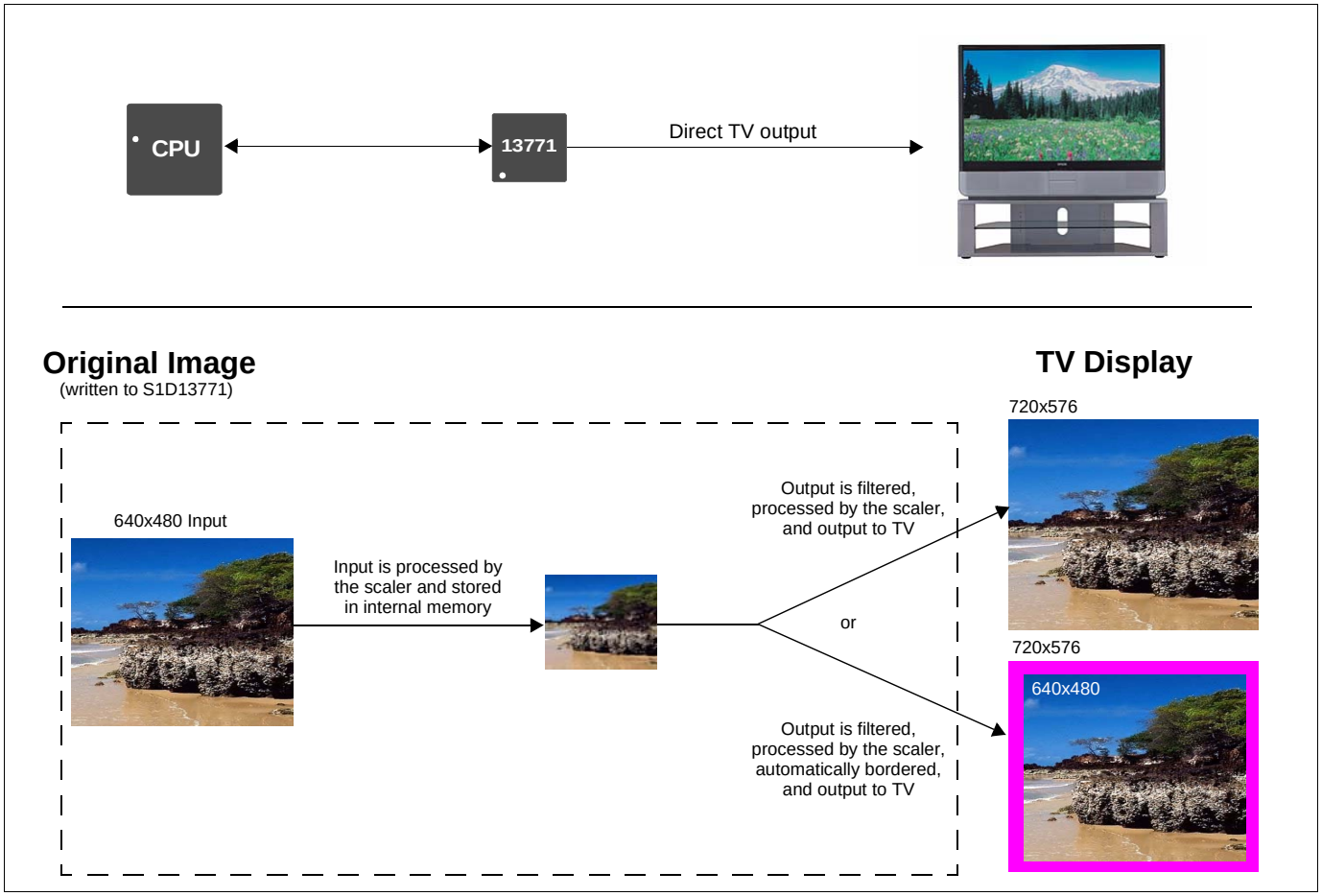
S1D13771 is an extremely low cost, low pin-count device providing direct support for TV output. A high quality internal scaler and complex TV filters allow for VGA resolution input to be stored using a minimum amount of memory, while still providing smoothly scaled output to the full resolution specified by either PAL or NTSC standards. S1D13771 is the ideal solution for cellular phone markets where TV output is a requirement.

The minimal feature set and high level of integration (embedded SRAM and high output DAC) provides a low cost, low power, single chip solution to meet the demands of embedded markets requiring TV output, such as Mobile Communications devices.

FEATURES

- Embedded SRAM
- Low Operating Voltage
- Parallel Host Interface
- High Output DAC
- High Quality Scaler provides Bi-Cubic input/output scaling
- TV Connect/Disconnect Detection
- PAL and NTSC output
- Auto-Border / Auto-Center of TV Image with a programmable color
- 15-Tap Programmable Chrominance / Luminance Filters
- 3x3 Pixel Filter
- Software Initiated Power Save Mode

SYSTEM BLOCK DIAGRAM



DESCRIPTION

Integrated Frame Buffer

- Embedded SRAM

CPU Interface

- 8-bit Parallel Indirect Interface (Intel 80)
- Chip select is used to select device. When in-active, any input data/commands are ignored.

Input Formats

- RGB: 8:8:8, 6:6:6, 5:6:5
- YUV: 4:2:2
- All input data is processed by the scaler and stored in internal memory.

TV Output

- Composite PAL / NTSC output
- 15-Tap Programmable Chrominance / Luminance Filters
- Scaler uses Bi-Cubic scaling to scale-up or scale-down
- Auto-Border / Auto-Center
  - Programmable border color
- Square Pixel Correction
- Macrovision Protection Support (bond-out option)
- TV Connect/Disconnect Detection

Image Enhancement Engine

- 3x3 Pixel filter
  - User defined coefficients
  - Individual control for each YUV component
  - Display effects include: smooth, sharpen, blur, detail, edge enhance, emboss, contour, flicker filter, sepia, and dot crawl correction

Clock Input

- Single digital clock input used for: (18-27MHz typical)
  - Internal PLL reference clock (PLL used for system clock)
  - TV Timing (can optionally use PLL÷2)
  - DDS Timing (can optionally use PLL÷2)

Miscellaneous

- Power save mode
  - Software controllable via registers
- General purpose IO pins
  - Configurable interrupt associated with GPIO inputs
- $CORE_{VDD}$ 1.5 Volts and IO_{VDD} 1.8 to 3.3 Volts
- DAC power supply: 3.0 Volts
- Package: W-CSP 64-pin (4.46 x 4.46mm)

THEORY OF OPERATION

The S1D13771 contains an embedded SRAM frame buffer allowing up to VGA resolution to be stored using a high quality scaling algorithm. All stored images can be scaled-up or scaled-down for display on the TV using bi-cubic scaling. If the resulting image is not scaled-up to the maximum resolution defined by the TV standard, the image is automatically centered and bordered with a programmable border color.

A 3x3 pixel filter and programmable chrominance / luminance filters are provided to generate a high quality TV image.

CONTACT YOUR SALES REPRESENTATIVE FOR THESE COMPREHENSIVE DESIGN TOOLS

- S1D13771 Technical Documentation
- CPU Independent Software Utilities
- Evaluation Boards
- Royalty Free source level driver code

Japan
Seiko Epson Corporation
IC International Sales Group
421-8, Hino, Hino-shi
Tokyo 191-8501, Japan
Tel: 042-587-5812
Fax: 042-587-5564
http://www.epson.co.jp/

North America
Epson Electronics America, Inc.
2580 Orchard Parkway
San Jose, CA 95131, USA
Tel: (408) 922-0200
Fax: (408) 922-0238
http://www.eea.epson.com/

Taiwan
Epson Taiwan Technology & Trading Ltd.
14F, No. 7
Song Ren Road
Taipei 110
Tel: 02-8786-6688
Fax: 02-8786-6677
http://www.epson.com.tw/

Hong Kong
Epson Hong Kong Ltd.
20/F., Harbour Centre
25 Harbour Road
Wanchai, Hong Kong
Tel: 2585-4600
Fax: 2827-4346
http://www.epson.com.hk/

Europe
Epson Europe Electronics GmbH
Riesstrasse 15
80992 Munich, Germany
Tel: 089-14005-0
Fax: 089-14005-110
http://www.epson-electronics.de/

Singapore
Epson Singapore Pte Ltd
1 HarbourFront Place #03-02
HarbourFront Tower One
Singapore, 098633
Tel: (65) 6586-5500
Fax: (65) 6271-3182
http://www.epson.com.sg/

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for Display Drivers & Controllers ***category:***

Click to view products by Epson ***manufacturer:***

Other Similar products are found below :

ICB2FL01G HV5812PJ-G-M904 TW8813-LB2-GR TW8811-PC2-GR MAX1839EEP+ TW9907-TA1-GR LX27901IDW SSD2828QN4 ICB2FL01GXUMA2 DLP2000FQC PAD1000YFFR S1D13746F01A600 FIN324CMLX AD8387JSVZ DLPC6421ZPC HV852K7-G HV859K7-G HV857K7-G DIO2133CT14 S1D13506F00A200 S1D13L03F00A100-40 TW2836-BA1-GR SSD2829QL9 MAX749CSA+T MAX4820EUP+T ICL7135CAI+ ICL7135CMH+D ICL7137CMH+D MAX25221BATJ/V+ S1D13748B00B100 MAX3738ETG+T MAX8722CEEG+ MAX749CPA+ MAX8785AETI+ ICL7135CQI+ HV518PJ-G-M903 HV5812P-G HV5812PJ-G HV5812WG-G HV7224PG-G HV853K7-G HV860K7-G HV6810WG-G HV857MG-G HV833MG-G HV857LMG-G HV850MG-G HV859MG-G FMS6363ACSX FMS6364AMTC14X