

CORAL P

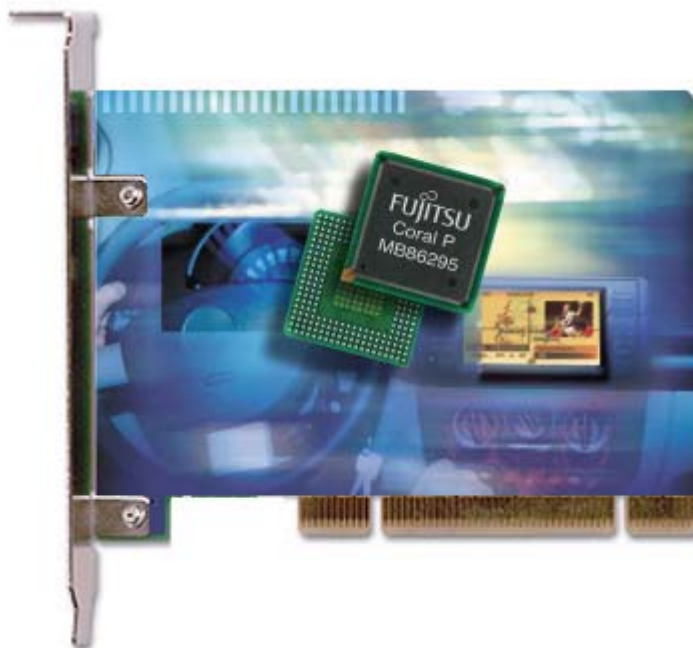


MB86295-EB01 Rev. 5.0

April 2004

1.3

CORAL P Evaluation Board



Revision Control

Revision Number	Date	Description of changes
0.1	9/8/02	Initial Release
0.9	6/12/02	Jumper list added
1.0	9/12/02	First official release
1.1	08/04/03	Adopted to board revision 3.0, jumper list updated
1.2	21/07/03	Adopted to board revision 4.0, jumper list updated
1.3	16/04/04	Jumper list updated to board revision 5.0, description about the LED on the board added

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1 Overview

This evaluation board is designed to evaluate and test the functions of the Fujitsu MB86295S “Coral P” graphic controller.

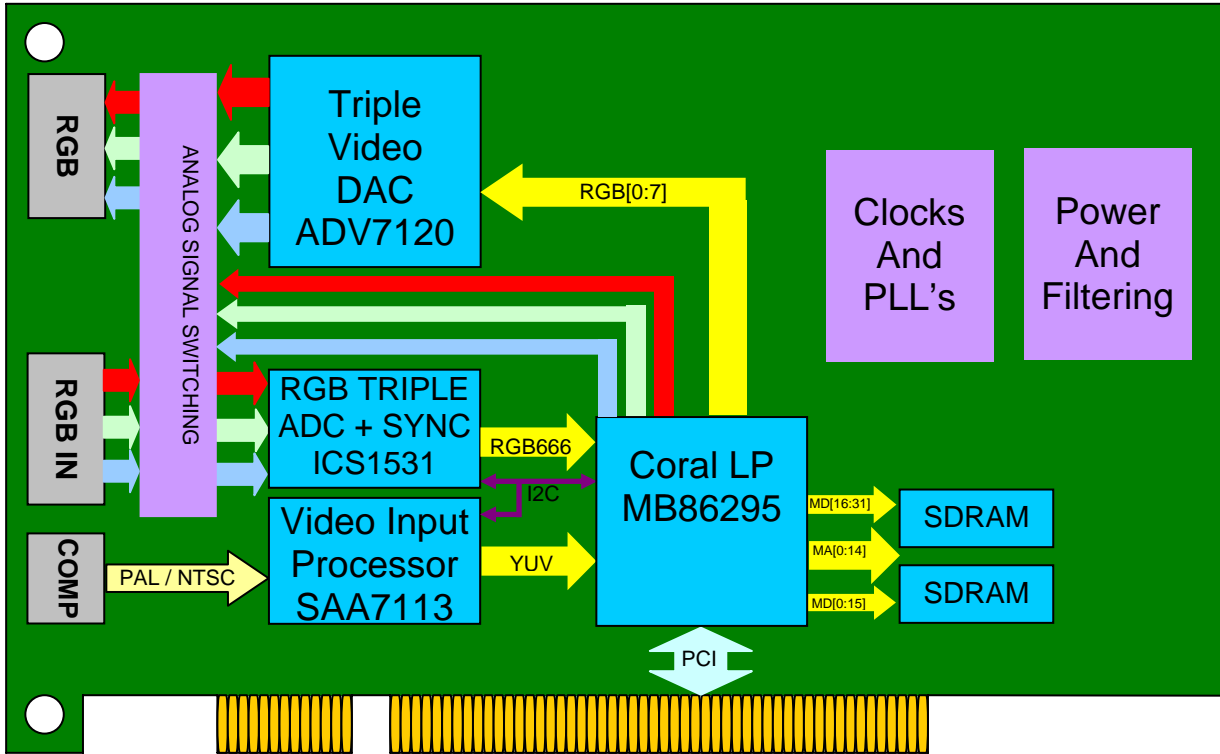
The evaluation board can be used in any 5V or 3.3V PCI system (PCI compliant V2.1) at 33 MHz bus frequency. Example software and drivers included in this system are developed for Windows NT™ or Windows 2000™ .

2 Hardware Installation

In order to install the MB86295S-EB01 evaluation board in your system, follow these instructions :

1. Make sure all jumpers are set to their default position (refer to “Jumper Settings”).
2. Power down your target system (PC or other PCI-environment) and insert the card. Note that either 3.3V or 5V systems can be used. Level-converters allow to operate the evaluationboard in a 5V environment, but the Coral P graphic controller has a 3.3V PCI-interface only.
3. Restart your target system
4. Install the software driver and example software (**refer to the software installation instructions on the CD ROM**)
5. Connect a VGA-monitor to the RGB-output connector J350 to see the examples provided

3 System Components



Coral-P PCI Evaluation Card block diagram

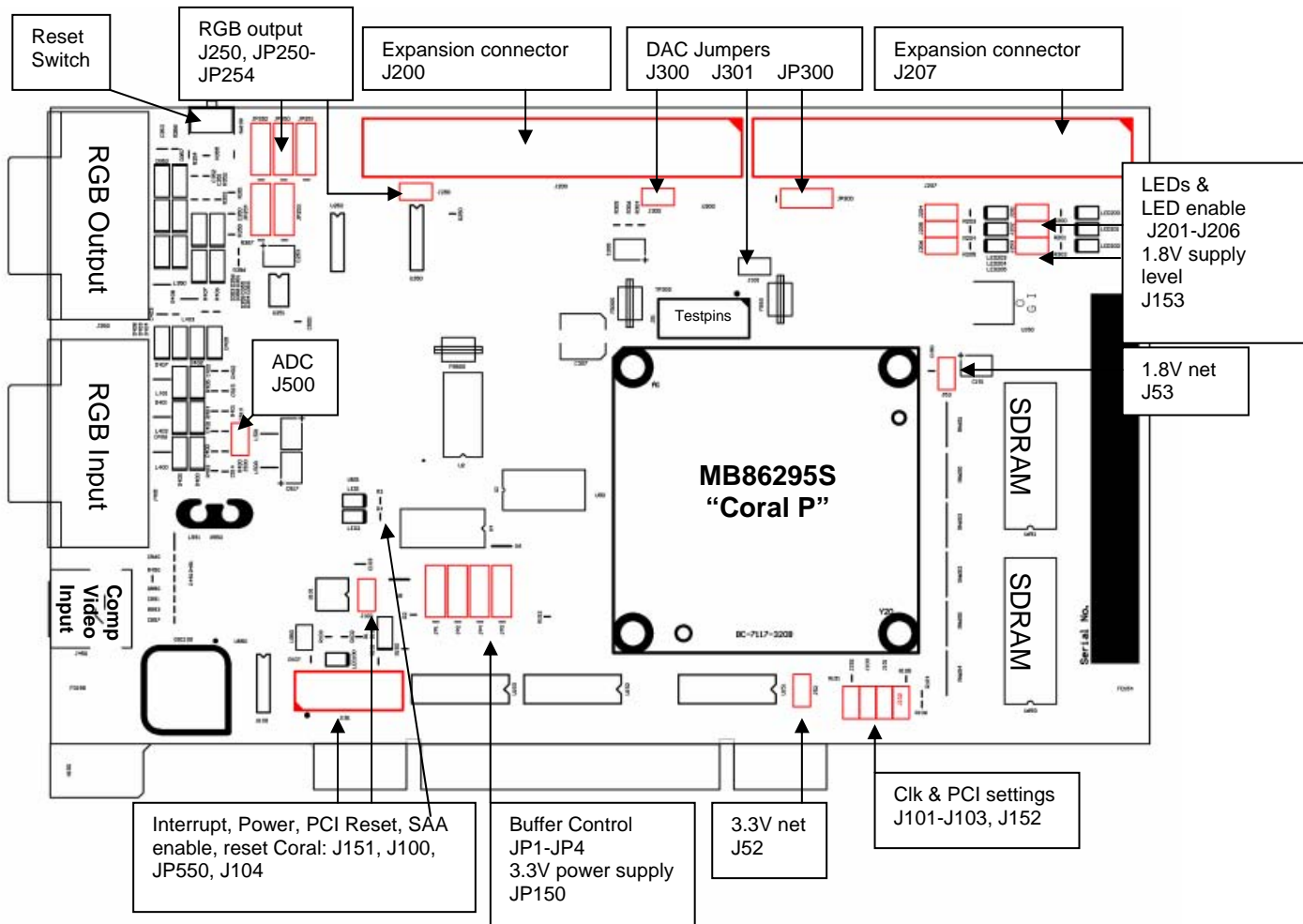
Main components of the MB86295-EB01 evaluation board are :

- ❑ “Coral P” Graphic Controller (MB86295S)
- ❑ 64Mbyte SDRAM 2x 256Mbit, 16 bit, 133 MHz (K4S561632C)
- ❑ Video Input Processor (SAA7113)
- ❑ ADC for Analog RGB Input (AD9883)
- ❑ DAC for Analog RGB Output (ADV7125)
- ❑ Switching Logic for multiplexed Inputs/Outputs

- ❑ VGA Output connector
- ❑ VGA Input connector
- ❑ Composite Video input connector
- ❑ Expansion Connector (4x 40pin JP)
- ❑ PCI dual key connector

- ❑ Test LEDs
- ❑ Configuration Jumper

4 External Appearance



Position of main external components and jumpers

5 Jumper Settings and LEDs

This table gives an overview of the Jumpers on the Coral P evaluation board. Be sure to set all jumpers according to the function you want to use. Before inserting the Coral P evaluation board for the first time, make sure all jumpers are correctly set to their default positions. The jumpers in this table are logically grouped according to the sheet in the evaluation board schematics.

Jumper	Function	Set	Description
JP1	BUFF1 CONTROL SEL	1-2	ITU656 Input Buffer manual enable by JP2
		2-3	ITU656 Input Buffer enable by GPIO (GPCON0) control (default)
JP2	MANUAL SELECT 1	1-2	Enable ITU656 input buffers
		2-3	Disable ITU656 input buffers (default)
JP3	BUFF2 CONTROL SEL	1-2	RGB Input Buffer manual enable by JP4
		2-3	RGB Input Buffer enable by GPIO (GPCON1) control (default)
JP4	MANUAL SELECT 2	1-2	Enable RGB input buffers
		2-3	Disable RGB input buffers (default)
JP300	DAC VSYNC SELECT	1-2	VSYNC DAC enable
		2-3	VSYNC DAC disable (default)
J300	DAC BLANK	Closed	Activate blanking
		Open	Disable blanking (default)
J301	DAC POWER SAVE	Closed	Enable Power save mode
		Open	Disable Power save mode (default)
J500	ADC SYNC ON GREEN	Open	Disable (default)
		Closed	Enable
J250	RGB Output Switch SEL	Closed	Coral Analog Outputs (default)
		Open	DAC Analog Outputs
JP250	Green Output	1-2	Coral Analog Output Override
		2-3	Output Switch (use J250) (default)
JP251	Red Output	1-2	Coral Analog Output Override
		2-3	Output Switch (use J250) (default)
JP252	Blue Output	1-2	Coral Analog Output Override
		2-3	Output Switch (use J250) (default)
JP253	HYSNC line driver	1-2	Direct Coral HSYNC line (default)
		2-3	HSYNC line driver
JP254	VSYNC line driver	1-2	Direct Coral VSYNC line (default)
		2-3	VSYNC line driver

J201	LED RGBIR0 enable	Closed	LED enable
		Open	LED disable (default)
J202	LED RGBIR1 enable	Closed	LED enable
		Open	LED disable (default)
J203	LED RGBIR2 enable	Closed	LED enable
		Open	LED disable (default)
J204	LED RGBIR3 enable	Closed	LED enable
		Open	LED disable (default)
J205	LED RGBIR4 enable	Closed	LED enable
		Open	LED disable (default)
J206	LED RGBIR5 enable	Closed	LED enable
		Open	LED disable (default)
J151 (1-8)	Interrupt Select (all are open by default)	1-2	INTA#
		3-4	INT B#
		5-6	INT C#
		7-8	INT D#
J151 (9-12)	Board Power Indicator	9-10	PRSNT1# (closed by default = 25W)
		11-12	PRSNT2# (open by default = 25W)
J152	66 MHz PCI bus enable	Closed	Disable (default)
		Open	Enable
J100	PCI Reset enable	Closed	enable
		Open	Disable (default)
J101	Coral CLKSEL0 Input	Closed	14.32 MHz source (default)
		Open	Other oscillator settings
J102	Coral CLKSEL1 Input	Closed	Other oscillator settings
		Open	14.32 MHz source (default)
J103	Coral CLOCKMODE Input	Closed	Internal PLL (default)
		Open	PCI bus clock
J51	Testpin Select (all are open by default)	1-2	Test XSM enable
		3-4	Test MST enable
		5-6	Test SMCK enable
		7-8	Test DAC enable
		9-10	Test XTST enable
J52	Coral 3.3V net enable	Closed	3.3V supply pins enabled (default)
		Open	(for current measurement only)
J53	Coral 1.8V net enable	Closed	1.8V supply pins enabled (default)
		Open	(for current measurement only)

J104	Reset Coral P	Open	No reset
		Closed	reset
J153	Power supply Coral P	Closed	Coral is supplied with 1.8V on 1V8-pin
		open	Coral is supplied with 1.9V on 1V8-pin
JP150	Select 3.3V power supply	2-3	3.3V is supplied by PCI-bus
		1-2	3.3V is generated from onboard voltage regulator
JP501	Enable video ADC (Rev. 4.0 or later)	Closed	ADC enabled
		open	ADC disabled
JP550	Enable video decoder SAA7113H (Rev. 3.0 or later)	1-2	Always enabled
		2-3	Controlled by GPIO
J251	Disable analogue switch for video output	Open	Device is enabled
		closed	Device is disabled, jumper should be closed, if -12V is not available at PCI-bus, in that case set JP250-JP252 to position 1-2

Table 1 Jumper on the board

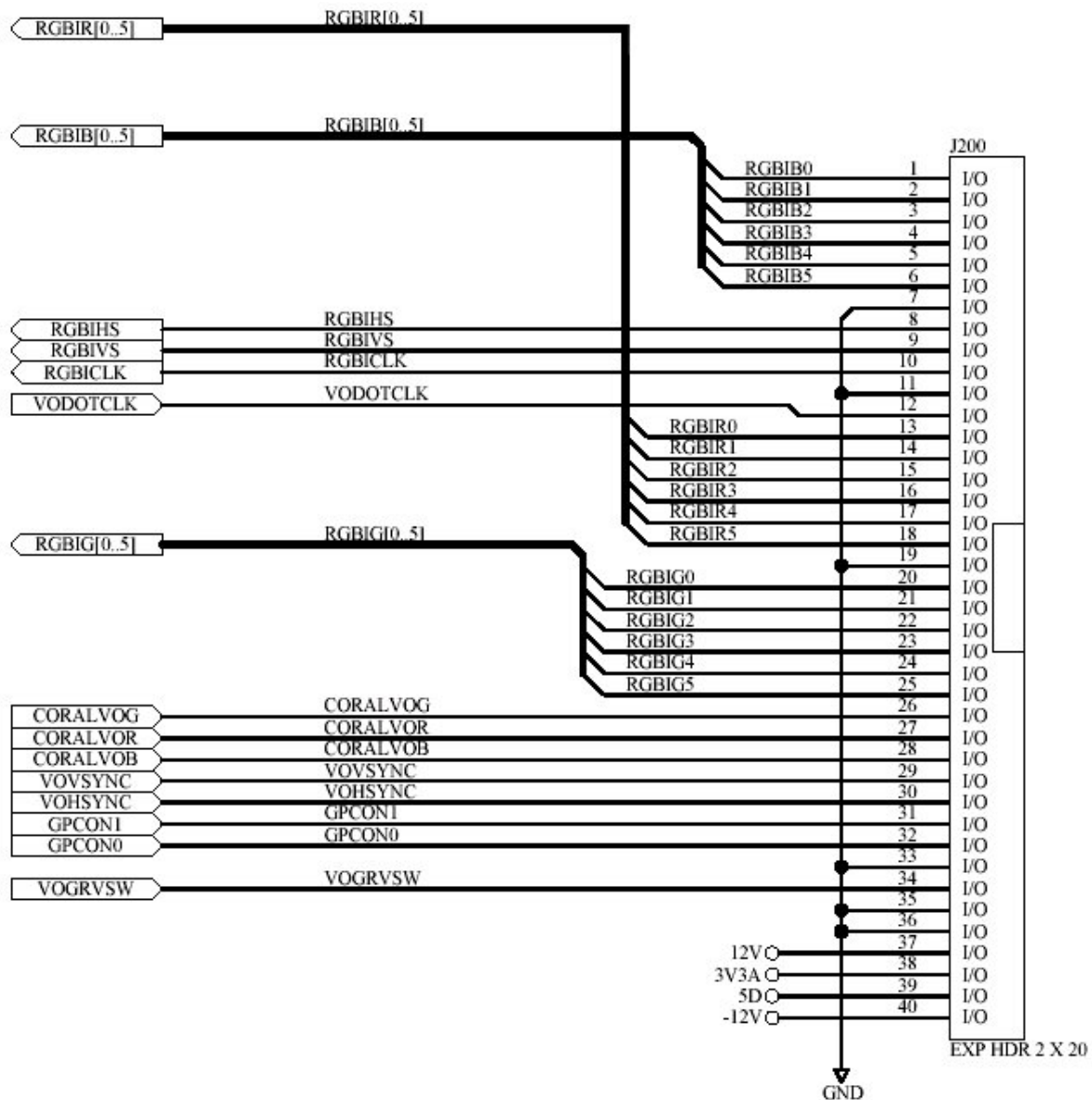
There are further some LED's on the board what should show activity or status of different lines or signals.

LED	connected	function
LED1	GPIO pin	If on, RGB input buffer is enabled
LED2	GPIO pin	If on, ITU656 input buffer is enabled
LED100	PCI reset signal	If on, reset is active
LED150	5V voltage net	If on, 5V voltage is available
LED151	3.3V voltage net	If on, 3.3V voltage is available
LED152	1.8V voltage net	If on, 1.8V voltage is available
LED153	12V voltage net	If on, 12V voltage is available
LED154	-12V voltage net	If on, -12V voltage is available
LED200	RGBIR0	Pin can be used as IO-pin
LED201	RGBIR1	Pin can be used as IO-pin
LED202	RGBIR2	Pin can be used as IO-pin
LED203	RGBIR3	Pin can be used as IO-pin
LED204	RGBIR4	Pin can be used as IO-pin
LED205	RGBIR5	Pin can be used as IO-pin

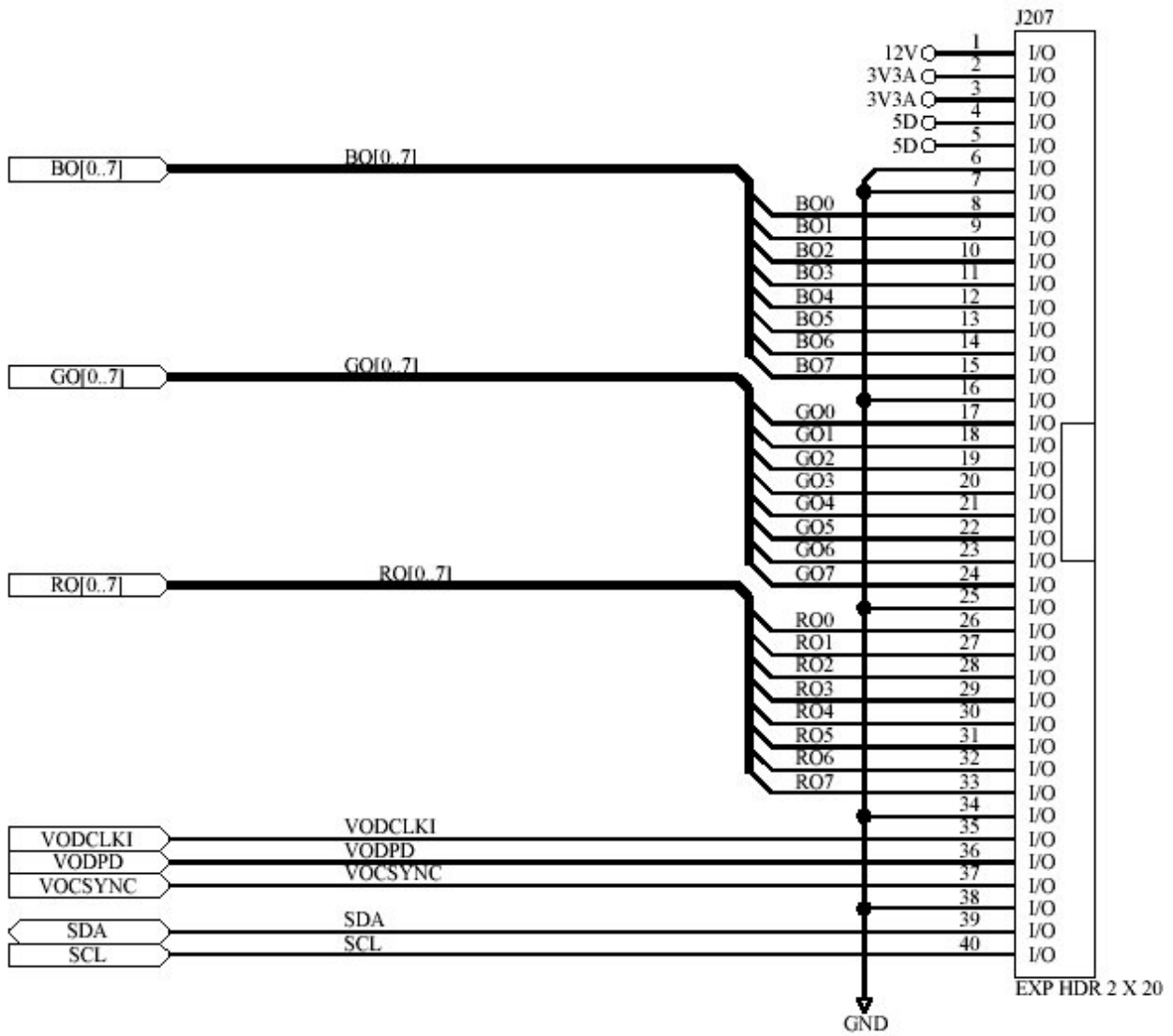
Table 2 LEDs on the board

Expansion Connectors

There are two expansion connectors available on the MB86295-EB01 evaluation board which can be used to access video in- and output signals as well as some other signals for board extensions. The physical locations in combination with the jumpers J51 and J151 allow a daughter-board design which can be mounted on top of the evaluation board.



Expansion connector J200 (Video Input Signals)



Expansion Connector J207 (Video output signals)

6 Multiplexed Pins of Coral P

Coral P provides a number of functions which are multiplexed on different IO-pins. This evaluationboard provides a multiplexing unit (buffers) for most of these pins. This sections explains which functions can be used and which settings are required to enable a dedicated signal routing.

SDRAM bus

Originally, Coral P allows to use either a 32-bit or a 64-bit SDRAM bus (see “XRE pin”). In order to avoid complex high-speed signal buffers and in order to allow complete testing of the video input facilities, **this board provides only a 32-bit SDRAM bus (XRE is fixed to logic zero)** .

Video input bus

Coral P has a number of functions multiplexed on the video input bus. In addition, this bus can be used on the evaluationboard to expand some additional functions (e.g. LEDs, SIO). The main signal routing for video input can be controlled by 2 GPIO pins GPCON0 and GPCON1 – or alternatively, by jumpers. The GPCON pins can be programmed using the Coral GPIO registers. Refer to the example software projects for details.

Which functions are available and how they can be selected is shown in the table below :

Bus mode	Function	GPCON pins	Description
0	Video inputs disabled	GPCON0=0 GPCON1=0	Onboard video input sources are not routed to Coral RGB digital video sources can be input on the expansion connector J200 <i>or</i> LEDs can be used (make sure J201..6 are set) <i>or</i> Other functions (SIO, GPIOs) can be used
1	Composite video input	GPCON0=1 GPCON1=0	ITU656 video bus is routed from the video decoder (SAA7113) to Coral ITU656 video input other functions are not available
2	RGB video input	GPCON0=0 GPCON1=1	RGB666 video bus is routed from the ADC (AD9883) to Coral RGB video input other functions are not available
3	Setting prohibited !	GPCON0=1 GPCON1=1	Setting prohibited !

An alternative method to achieve the above settings is to enable the appropriate buffers directly using jumpers (then the GPCON0,1 outputs are ignored). To enable one of these functions directly, set JP1 and JP3 to 1-2 and use JP2 and JP4 to set one of the above modes. Make sure not enable both buffers simultaneously (mode 3) !

7 Memory Map

The MB86295-EB01 evaluationboard appears in PCI Memory map in Local Address Space 0 :

1000 0000h 11FB FFFFh	CORAL Frame Memory	32bit	PCI Local Address Space 0
11FC 0000h 11FF FFFFh	CORAL Register Area	32bit	

Note : For details regarding the Coral frame and register memory area, refer to the “MB86295 Coral LP hardware manual

8 Worldwide Headquarters and Disclaimer

Japan

Tel: +81 44 754 3753
Fax: +81 44 754 3329

Fujitsu Limited
Kamikodanaka 4-1-1
Nakahara-ku
Kawasaki-shi
Kanagawa-ken 211-8588
Japan

<http://www.fujitsu.com>

Asia

Tel: +65 281 0770
Fax: +65 281 0220

Fujitsu Microelectronics Asia
PTE Limited
#05-08, 151 Lorong Chauan
New Tech Park
Singapore 556741

<http://www.fmal.fujitsu.com/>

USA

Tel: +1 408 922 9000
Fax: +1 408 922 9179

Fujitsu Microelectronics Inc
3545 North First Street
San Jose CA 95134-1804
USA

Tel: +1 800 866 8608
Fax: +1 408 922 9179

Customer Response Center
Mon-Fri 7am-5pm (PST)

<http://www.fma.fujitsu.com/>

Europe

Tel: +49 6103 6900
Fax: +49 6103 690122

Fujitsu Microelectronics Europe GmbH
Am Siebenstein 6-10
D-63303 Dreieich-Buchsschlag
Germany

<http://www.fme.fujitsu.com/>

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