# Shiratech FPGA Mezzanine for 96Boards

User Manual V0.9



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#### 1. Introduction

Shiratech FPGA Mezzanine is a 96Boards compatible mezzanine board accommodating Intel MAX10 FPGA. It is 96Boards compatible board, both consumer addition (CE) and enterprise edition (EE). The mezzanine has Arduino, Raspberry PI and Grove connectors and can serve as HW bridge between those development platforms to 96Boards.

The mezzanine consists of the following key elements:

- Intel MAX10 FPGA
- Arduino shield format connector
- Raspberry PI hat format connector
- Grove connectors
- USB PHY



Arduino Shield connectors

#### 2. Functional Block Diagram

- The mezzanine is connected to 96Boards carrier board through Low Speed and High Speed Connectors.
- The board is connected to 1.8V and 5V power feeds. LDO regulators provide 3.3V, 2.5V and 1.2V for distribution to the different components.
- MAX10 FPGA :
  - Connected to 3.3V, 2.5V, 1.8V and 1.2V power rails.
  - Connected to 96Boards carrier board High Speed and Low speed connectors, Arduino, Raspberry Pi and grove connectors.
  - Uses JTAG connector for firmware programming.
  - 50MHz oscillator.
  - USB PHY enables USB connectivity of the FPGA to carrier board USB.
  - $\circ$  User defined 4 bit switch and 4 LEDs



## 3. Arduino Connectors Pin Information

Connectors J13, J14, J16 and J17 on top of the mezzanine are compatible with Arduino shield connector format, and the FPGA demo code provided by Shiratech implements a complete bridge between Arduino and 96Boards connectors.

Upon power up or reset event all pins are configured as input pins to avoid electrical contention between a connected shield to the FPGA IO pins. To start using the shield the user should configure the needed GPIO pins using internal registers accessible through I2CO bus.

#### Pin configuration options:

- Each GPIO pin (GPIO2-GPIO9) can be configured as Input or Output pin. Pins configured as Input pins can be read from a read only register. Pins configured as Output pins can be read/write from read/write register.
- I2C, SPI and UART pins can be configured as GPIO or to their specific functionality. Pins configured as Input pins can be read from a read only register. Pins configured as Output pins can be read/write from read/write register.
- 3. If assigned to specific functionality the buses are connected as follows (See table below):
  - A. J13 pins 1-2 connected to 96Boards I2CO.
  - B. J17 pins 5-6 connected to 96Boards I2C1.
  - C. J13 pins 5-8 connected to 96Boards SPI0.
  - D. J14 pins 7-8 connected to 96Boards UARTO.

For detailed registers description refer to chapter 6 – Control Registers

<u>Attention</u>: The mezzanine supports 3.3V Arduino format shields only. Do not connect 5V shields as it may damage the FPGA.

		1	I2C0_SCL/GPI015
		2	I2C0_SDA/GPI014
		3	arduino_aref
	J16	4	GND
NC	1	5	SPI0_CLK/GPIO13
SYS_5P0	2	6	SPI0_MISO/GPI012
	3	7	SPI0_MOSI/GPI011
3V3	4	8	SPI0_CS_N/GPIO10
SYS_5P0	5	9	GPIO9
GND	6	10	GPIO8
GND	7		
Vin	8	J14	
		1	GPIO7
	J17	2	GPIO6
Analog In O	1	3	GPIO5
Analog In 1	2	4	GPIO4
Analog In 2	3	5	GPIO3
Analog In 3	4	6	GPIO2
GPIO17/I2C1_SDA	5	7	UART0_TX/GPIO1

#### Table 1 - Arduino Connectors Pin Information

J13

### 4. Raspberry Pi Connector Pin Information

Connector J26 on top of the mezzanine is compatible with Raspberry Pi connector format, and the FPGA demo code provided by Shiratech implements a complete bridge between Raspberry Pi and 96Boards connectors.

Upon power up or reset event all pins are configured as input pins to avoid electrical contention between a connected HAT to the FPGA IO pins. To start using the HAT the user should configure the needed GPIO pins using internal registers accessible through I2C0 bus.

#### Pin configuration options:

- Each GPIO pin can be configured as Input or Output pin.
   Pins configured as Input pins can be read from a read only register.
   Pins configured as Output pins can be read/write from read/write register.
- I2C, SPI and UART pins can be configured as GPIO or to their specific functionality.
   Pins configured as Input pins can be read from a read only register.
   Pins configured as Output pins can be read/write from read/write register.
- 6. If assigned to specific functionality the buses are connected as follows (See table below):
  - E. J26 pins 27-28 are connected to 96Boards I2CO.
  - F. J26 pins 3 and 5 are connected to 96Boards I2C1.
  - G. J26 pins 19, 21, 23 and 24 are connected to 96Boards SPI0.
  - H. J26 pins 26, 35, 38 and 40 are connected to 96Boards SPI1.
  - I. J26 pins 8 and 10 are connected to 96Boards UARTO.

For detailed registers description refer to chapter 6 – Control Registers

<u>Attention</u>: The mezzanine supports 3.3V HATs only. Do not connect 5V HATs as it may damage the FPGA.

	J2	26	
3.3V	1	2	5V
I2C1 SDA	3	4	5V
I2C1 SCL	5	6	GND
GPIO4	7	8	UART TXD
GND	9	10	UART RXD
GPIO17	11	12	GPIO18
GPIO27	13	14	GND
GPIO22	15	16	GPIO23
3.3V	17	18	GPIO24
SPI0 MOSI	19	20	GND
SPI0 MISO	21	22	GPIO25
SPI0 SCLK	23	24	SPI0 CE
GND	25	26	SPI1 CE
I2C0 SDA	27	28	12C0 SCLK
GPIO5	29	30	GND
GPIO6	31	32	GPIO12
GPIO13	33	34	GND
SPI1 MISO	35	36	GPIO16
GPIO26	37	38	SPI1 MOSI
GND	39	40	SPI1 SCLK

#### Table 2 - Raspberry Pi Connector Pin Information

### 5. Grove Connectors Pin Information

TBD

## 6. Configuration Registers

The firmware provided with the FPGA Mezzanine implements a bridging functionality between 96Boards to Arduino, Raspberry Pi and Grove.

The design includes I2C slave device with control and configuration register for each of the IO pins in the expansion connectors.

The I2C device is connected to 96Boards I2C0 bus at address 0x6F.

0x6F	dress:							
Address: C	0x00							
Register n	ame: REV_F	₹EG						
Reset valu	ie: 0x10							
Access: Re	ad only							
	MSB	<del>1</del>	·	r	r	r	r	LSB
Bit	7	6	5	4	3	2	1	0
Value	0	0	0	1	0	0	0	0
Address:C	0x01							
Register n	ame: TEST_	REG						
Reset valu	ie: 0x00							
Access: Re	ad/Write							
	MSB							LSB
	/	6	5	4	3	2	1	0 T0
Bit		1 16 1	15	14	13	12	11	10
Bit Name	Τ7	10						

Use register 0x11 to read value of GPIO configured as input. Use register 0x12 to write value to GPIO configured as output. By default all GPIO pins configured as inputs after reset.

Address: 0x10 Register name: ARD\_IO\_CONF\_REG Reset value: 0xff Access: Read/Write

Bit	7	6	5	4	3	2	1	0
Name	GPIO8	GPIO9	GPIO2	GPIO3	GPIO4	GPIO5	GPIO6	GPIO7
Pin	J13.10	J13.9	J14.6	J14.5	J14.4	J14.3	j14.2	J14.1

Arduino GPIO configuration:

1 - Set IO pin as Input

0 - Set IO pin as Output

Default - 1 (Input)

Address: 0x11 Register name:

ARD\_IO\_RD\_REG

Reset value: 0xff

Access: Read only

Bit	7	6	5	4	3	2	1	0
Name	GPIO8	GPIO9	GPIO2	GPIO3	GPIO4	GPIO5	GPIO6	GPIO7
Pin	J13.10	J13.9	J14.6	J14.5	J14.4	J14.3	j14.2	J14.1

Read value from Arduino GPIO pins configured as inputs.

Address: 0x12 Register name: ARD\_IO\_WR\_REG

Reset value: 0x00

Access: Read/Write

Bit	7	6	5	4	3	2	1	0
Name	GPIO8	GPIO9	GPIO2	GPIO3	GPIO4	GPIO5	GPIO6	GPIO7
Pin	J13.10	J13.9	J14.6	J14.5	J14.4	J14.3	j14.2	J14.1

Write to Arduino GPIO pins configured as outputs.

Registers	0x13-0x16	are used to	control Arc	luino pins t	hat have sp	ecific funct	ion (12C, SP	UART):
Use reg	(ister 0x13 to	o select if a	pin serves	as GPIO or s	specific fund	tion (I2C, S	5PI, UART)	l, OANI).
Use reg	ister 0x14 to	o configure	each GPIO	pin as input	t or	ζ, γ		
output.								
Use reg	ister 0x15 to	o write valu	e to GPIO c	onfigured a	is output.			
Use reg	ister 0x16 to	o read value	e from GPIC	) configured	l as input.			
By defaul	t all gpio pi	ins configure	ed as input	s after rese	et.			
Address:	0x13							
Register r	name: ARD (	0 FUNC IO	SEL REG					
Reset val	ue: 0xff							
Access: R	ead/Write							
	7	6	5	4	3	2	1	0
Bit	/							
Bit Name	i2c0_scl	i2c0_sda	spi0_cs	ar_mosi	ar_miso	ar_sck	uart_tx	uart_rx
Bit Name Pin	i2c0_scl J13.1 Select if A 0 - Pin is	i2c0_sda J13.2 rduino pin i s used for sp	spi0_cs J13.8 s used as G pecific funct	ar_mosi J13.7 PIO or speci	ar_miso J13.6 ific function I, UART)	ar_sck J13.5 I (I2C, SPI, U	uart_tx J14.7 ART):	J14.8
Bit Name Pin Address:	v i2c0_scl J13.1 Select if A 0 - Pin is 1 - Pin is Default	i2c0_sda J13.2 rduino pin i s used for sp s used as GP - 1 (GPIO)	spi0_cs J13.8 s used as G becific funct IO	ar_mosi J13.7 PIO or speci	ar_miso J13.6 ific function I, UART)	ar_sck J13.5	J14.7 ART):	J14.8
Bit Name Pin Address: Register r ARD_0_F	v i2c0_scl J13.1 Select if A 0 - Pin is 1 - Pin is Default - 0x14 name: JNC_IO_COM	i2c0_sda J13.2 rduino pin i s used for sp s used as GP - 1 (GPIO) NF_REG	spi0_cs J13.8 s used as G pecific funct IO	ar_mosi J13.7 PIO or speci	ific function	ar_sck J13.5	ART):	J14.8
Bit Name Pin Address: Register r <b>ARD_0_F</b> Reset val	v i2c0_scl J13.1 Select if A 0 - Pin is 1 - Pin is Default - Ox14 name: JNC_IO_COM ue: 0xff	i2c0_sda J13.2 rduino pin i s used for sp s used as GP - 1 (GPIO) NF_REG	spi0_cs J13.8 s used as G pecific funct IO	ar_mosi J13.7 PIO or speci	ar_miso J13.6 ific function I, UART)	ar_sck J13.5	ART):	J14.8
Bit Name Pin Address: Register r <b>ARD_0_F</b> Reset val Access: R	v i2c0_scl J13.1 Select if A 0 - Pin is 1 - Pin is Default - Ox14 name: JNC_IO_COM ue: 0xff ead/Write	i2c0_sda J13.2 rduino pin i s used for sp s used as GP - 1 (GPIO) NF_REG	spi0_cs J13.8 s used as G pecific funct IO	ar_mosi J13.7 PIO or speci	ar_miso J13.6 ific function I, UART)	ar_sck J13.5	ART):	J14.8
Bit Name Pin Address: Register r <b>ARD_0_F</b> Reset val Access: R	v i2c0_scl J13.1 Select if A 0 - Pin is 1 - Pin is Default Ox14 name: JNC_IO_COM ue: 0xff ead/Write	i2c0_sda J13.2 rduino pin i s used for sp s used as GP - 1 (GPIO)	spi0_cs J13.8 s used as G pecific funct IO	ar_mosi J13.7 PIO or speci	ar_miso J13.6 ific function I, UART)	ar_sck J13.5	ART):	J14.8
Bit Name Pin Address: Register r <b>ARD_0_F</b> Reset val Access: R Bit	v i2c0_scl J13.1 Select if A 0 - Pin is 1 - Pin is Default Ox14 name: UNC_IO_COM ue: 0xff ead/Write	i2c0_sda J13.2 rduino pin i s used for sp s used as GP - 1 (GPIO) <b>NF_REG</b>	spi0_cs J13.8 s used as G pecific funct IO	ar_mosi J13.7 PIO or speci tion (I2C, SP	ar_miso J13.6 ific function I, UART)	ar_sck J13.5 I (I2C, SPI, U	<u>uart_tx</u> J14.7 ART):	Uart_rx J14.8
Bit Name Pin Address: Register r <b>ARD_0_F</b> Reset val Access: R Bit Name	v i2c0_scl J13.1 Select if A 0 - Pin is 1 - Pin is Default Ox14 name: UNC_IO_COP ue: 0xff ead/Write 7 i2c0_scl	i2c0_sda J13.2 rduino pin i s used for sp s used as GP - 1 (GPIO) <b>NF_REG</b> 6 i2c0_sda	spi0_cs J13.8 s used as G becific funct IO 5 spi0_cs	ar_mosi J13.7 PIO or speci tion (I2C, SP	ar_miso J13.6 ific function I, UART) 3 ar_miso	ar_sck J13.5 I (I2C, SPI, U 2 ar_sck	<u>J14.7</u> ART): <u>1</u> uart_tx	Uart_rx J14.8 0 uart_rx
Bit Name Pin Address: Register r ARD_0_FI Reset val Access: R Bit Name Pin	v i2c0_scl J13.1 Select if A 0 - Pin is Default Default Ox14 name: UNC_IO_COM ue: 0xff ead/Write 7 i2c0_scl J13.1	i2c0_sda J13.2 rduino pin i s used for sp s used as GP - 1 (GPIO) NF_REG 6 i2c0_sda J13.2	spi0_cs J13.8 s used as G pecific funct IO 5 spi0_cs J13.8	ar_mosi J13.7 PIO or speci tion (I2C, SP tion (I2C, SP dar_mosi J13.7	ar_miso J13.6 ific function I, UART) J13.6	ar_sck J13.5 (I2C, SPI, U (I2C, SPI, U ar_sck J13.5	I uart_tx J14.7 ART): I uart_tx J14.7	0 uart_rx J14.8
Bit Name Pin Address: Register r ARD_0_F Reset val Access: R Bit Name Pin	<pre>/ i2c0_scl J13.1 Select if A 0 - Pin is 1 - Pin is Default Ox14 name: UNC_IO_COP ue: 0xff ead/Write 7 i2c0_scl J13.1</pre>	i2c0_sda J13.2 rduino pin i s used for sp s used as GP - 1 (GPIO) NF_REG 6 i2c0_sda J13.2	spi0_cs J13.8 s used as G becific funct IO 5 spi0_cs J13.8	ar_mosi J13.7 PIO or speci tion (I2C, SP (I2C, SP) diamondary of the species of t	ar_miso J13.6 ific function I, UART) 3 ar_miso J13.6	ar_sck J13.5 (I2C, SPI, U (I2C, SPI, U ar_sck J13.5	uart_tx         J14.7         ART):         1         uart_tx         J14.7	0 uart_rx J14.8
Bit Name Pin Address: Register r ARD_0_FI Reset val Access: R Bit Name Pin	v i2c0_scl J13.1 Select if A 0 - Pin is Default Default Ox14 name: UNC_IO_COP ue: 0xff ead/Write 7 i2c0_scl J13.1 Configura	i2c0_sda J13.2 rduino pin i s used for sp s used as GP - 1 (GPIO) NF_REG 6 i2c0_sda J13.2 tion for pins	spi0_cs J13.8 s used as G pecific funct IO 5 spi0_cs J13.8 s set to be u	ar_mosi J13.7 PIO or speci tion (I2C, SP tion (I2C, SP date of the species of the	ar_miso J13.6 ific function I, UART) ar_miso J13.6 D ('1' in regin	ar_sck J13.5 (I2C, SPI, U (I2C, SPI, U ar_sck J13.5 ster 0x13):	<u>uart_tx</u> J14.7 ART): <u>1</u> <u>uart_tx</u> J14.7	0 uart_rx J14.8
Bit Name Pin Address: Register n <b>ARD_0_F</b> Reset val Access: R Bit Name Pin	<pre>/ i2c0_scl J13.1 Select if A 0 - Pin is 1 - Pin is Default Ox14 name: UNC_IO_COP ue: 0xff ead/Write 7 i2c0_scl J13.1 Configura 1 - Set IC</pre>	i2c0_sda J13.2 rduino pin i s used for sp s used as GP - 1 (GPIO) NF_REG 6 i2c0_sda J13.2 tion for pins D pin as Inpu	spi0_cs J13.8 s used as G pecific funct IO 5 spi0_cs J13.8 s set to be u ut	ar_mosi J13.7 PIO or speci tion (I2C, SP diana speci 4 ar_mosi J13.7	ar_miso J13.6 ific function I, UART) JUART) 3 ar_miso J13.6 D ('1' in regi	ar_sck J13.5 (I2C, SPI, U (I2C, SPI, U ar_sck J13.5 ster 0x13):	<u>uart_tx</u> J14.7 ART): <u>1</u> <u>uart_tx</u> J14.7	0 uart_rx J14.8

Access: Read/Write Bit $7 6 5 4 3 2 1 0$ Name $12C0\_scl\_12C0\_sda\_spi0\_cs\_ar\_mosi\_ar\_miso\_ar\_sck\_uart\_tx\_uart\_rp}$ Pin $13.1\_J13.2\_J13.8\_J13.7\_J13.6\_J13.5\_J14.7\_J14.8$ Write to GPIO pins configured as outputs ('1' in register 0x13 and '0' in register 0x14): 0 - Drive GPIO pin low 1 - Drive GPIO pin high Address: 0x16 Register name: ARD_0_FUNC_IO_RD_REG Reset value: 0xff Access: Read only Bit $7 6 5 4 3 2 1 0$ $12.00\_scl\_12c0\_scl\_313.8\_J13.7\_J13.6\_J13.5\_J14.7\_J14.8$ Read from GPIO pins configured as inputs ('1' in register 0x13 and '1' in register 0x14). Register 0x17-0x1a are used to control Arduino pins that have specific function (I2C): Use register 0x18 to configure each GPIO pin as input or Dutput. Use register 0x19 to write value to GPIO configured as inputs. 3y default all GPIO pins configured as inputs after reset. Address: 0x17 Register name: ARD_1_FUNC_IO_SEL_REG Reset value: 0xff Access: Read/Write Bit $7 6 5 4 3 2 1 0$ Name $7 6 5 4 3 2 1 0$ Name $1 2 6 5 4 3 2 1 0$ Name $1 2 6 5 4 3 2 1 0$ Name $1 2 6 5 4 3 2 1 0$ Name $1 2 6 5 4 3 2 1 0$ Name $1 2 6 5 4 3 2 1 0$ Name $1 2 6 5 4 3 2 1 0$ Name $1 2 6 5 4 3 2 1 0$ Name $1 2 6 5 4 3 2 1 0$ Name $1 2 6 5 4 3 2 1 0$ Name $1 2 6 5 4 3 2 1 0$ Name $1 2 6 5 4 3 2 1 0$ Name $1 2 6 5 4 3 2 1 0$ Name $1 2 6 5 4 3 2 1 0$ Name $1 2 6 5 4 3 2 1 0$ Name $1 2 6 5 4 3 2 1 0$ Name $1 2 6 5 4 3 2 1 0$ Name $1 2 6 5 4 3 2 1 0$ Name $1 2 6 5 1 2 6 0 5 1 2 6 1 3 0 1 12$	keset val	ue: 0x00							
Bit       7       6       5       4       3       2       1       0         Name       12C0_scl       113.5       114.7       114.8         Write to GPIO pins configured as outputs ('1' in register 0x13 and '0' in register 0x14):       0       - Drive GPIO pin low       1       - Drive GPIO pin low         1 - Drive GPIO pin low         1 - Drive GPIO pin high	Access: R	ead/Write							
Name       i2c0_scl       i2c1_scl       i2	Bit	7	6	5	4	3	2	1	0
Pin         J13.1         J13.2         J13.8         J13.7         J13.6         J13.5         J14.7         J14.8           Write to GPIO pins configured as outputs ('1' in register 0x13 and '0' in register 0x14): 0 - Drive GPIO pin low 1 - Drive GPIO pin high           Address: 0x16           Register name: ARD_0_FUNC_IO_RD_REG           Reset value: 0xff           Access: Read only           Bit         7         6         5         4         3         2         1         0           Name           Pin         J13.1         J13.2         J13.8         J13.7         J13.6         J13.5         J14.7         J14.8           Read from GPIO pins configured as inputs ('1' in register 0x13 and '1' in register 0x14).           Registers 0x17-0x1a are used to control Arduino pins that have specific function (I2C):           Use register 0x18 to configure each GPIO pin as input or           Support of Dime GPIO configured as output.           Use register 0x19 to write value to GPIO configured as output.           Use register 0x19 to write value from GPIO configured as output.           Use register 0x19 to register 0x19 to register 0x10, SEL_REG           Register name: ARD_1_FUNC_I0_SEL_REG	Name	i2c0_scl	i2c0_sda	spi0_cs	ar_mosi	ar_miso	ar_sck	uart_tx	uart_rx
Write to GPIO pins configured as outputs ('1' in register 0x13 and '0' in register 0x14):         0 - Drive GPIO pin low         1 - Drive GPIO pin high         Address: 0x16         Register name: ARD_0_FUNC_IO_RD_REG         Reset value: 0xff         Access: Read only         Bit $\overline{7}$ $\overline{6}$ $\overline{5}$ $4$ $3$ $2$ $1$ $0$ Name $\overline{12C0\_scl}$ $i2C0\_sda$ $spi0\_cs$ $ar\_mosi$ $ar\_sck$ $uart\_tx$ $uart\_rx$ Pin $\overline{113.1}$ $J13.2$ $J13.8$ $J13.7$ $J13.6$ $J13.5$ $J14.7$ $J14.8$ Read from GPIO pins configured as inputs ('1' in register 0x13 and '1' in register 0x14).       To select if a pin serves as GPIO or specific function (I2C):       Use register 0x17 to select if a pin serves as GPIO or specific function (I2C):       Use register 0x17 to select if a pin serves as GPIO or specific function (I2C):       Use register 0x18 to configure each GPIO pin as input or sutput.       Use register 0x19 to write value to GPIO configured as output.       Use register 0x19 to write value to GPIO configured as input.       Bit Grad to read value from GPIO configured as input.       Bit Grad to read value from GPIO configured as input.       Bit Grad to read value from GPIO configured as input.       Bit Grad to read value from GPIO configured as input.       Bit Grad to read value from	Pin	J13.1	J13.2	J13.8	J13.7	J13.6	J13.5	J14.7	J14.8
Write to GPIO pins configured as outputs (1 in register 0x13 and 0 in register 0x14): 0 - Drive GPIO pin low 1 - Drive GPIO pin high Address: 0x16 Register name: ARD_0_FUNC_IO_RD_REG Reset value: 0xff Access: Read only Bit $7 6 5 4 3 2 1 0$ $12C0\_scl 12C0\_sda spi0\_cs ar\_mosi ar\_miso ar\_sck uart\_tx uart\_rx}$ 13.1 J13.2 J13.8 J13.7 J13.6 J13.5 J14.7 J14.8 Read from GPIO pins configured as inputs ('1' in register 0x13 and '1' in register 0x14). Registers 0x17-0x1a are used to control Arduino pins that have specific function (I2C): Use register 0x17 to select if a pin serves as GPIO or specific function (I2C). Use register 0x18 to configure each GPIO pin as input or output. Use register 0x19 to write value to GPIO configured as output. Use register 0x19 to write value to GPIO configured as input. 3y default all GPIO pins configured as inputs after reset. Address: 0x17 Register name: ARD_1_FUNC_IO_SEL_REG Reset value: 0xff Access: Read/Write Bit $7 6 5 4 3 2 1 0$ Name $$				<b>c</b> 1			0.40		0.44
$1 - Drive OPIO pin high$ Address: 0x16 Register name: ARD_0_FUNC_IO_RD_REG Reset value: 0xff Access: Read only Bit 7 6 5 4 3 2 1 0 I 12C0_scl i2C0_sda spi0_cs ar_mosi ar_miso ar_sck uart_tx uart_rx Pin 13.1 J13.2 J13.8 J13.7 J13.6 J13.5 J14.7 J14.8 Read from GPIO pins configured as inputs ('1' in register 0x13 and '1' in register 0x14). Registers 0x17-0x1a are used to control Arduino pins that have specific function (I2C): Use register 0x17 to select if a pin serves as GPIO or specific function I2C). Use register 0x18 to configure each GPIO pin as input or Sutput. Use register 0x18 to configure as inputs after reset. Use register 0x14 to read value to GPIO configured as output. Use register 0x1a to read value to GPIO configured as input. By default all GPIO pins configured as inputs after reset. Address: 0x17 Register name: ARD_1_FUNC_IO_SEL_REG Reset value: 0xff Access: Read/Write Bit 7 6 5 4 3 2 1 0 Name -		Write to C		onfigured as	outputs (1	inregister	UX13 and C	o in register	r 0x14):
Address: 0x16 Register name: ARD_0_FUNC_IO_RD_REG Reset value: 0xff Access: Read only Bit $7 6 5 4 3 2 1 0$ $12C0\_scl i2C0\_sda spi0\_cs ar\_mosi ar\_miso ar\_sck uart\_tx uart\_tx}$ Pin $13.1 J13.2 J13.8 J13.7 J13.6 J13.5 J14.7 J14.8$ Read from GPIO pins configured as inputs ('1' in register 0x13 and '1' in register 0x14). Register 0x17-0x1a are used to control Arduino pins that have specific function (I2C): Use register 0x17 to select if a pin serves as GPIO or specific function (I2C). Use register 0x18 to configure each GPIO pin as input or subput. Use register 0x18 to configure each GPIO configured as output. Use register 0x1a to read value to GPIO configured as input. 3y default all GPIO pins configured as inputs after reset. Address: 0x17 Register name: ARD_1_FUNC_IO_SEL_REG Reset value: 0xff Access: Read/Write Bit $7 6 5 4 3 2 1 0$ Name $ i2c1 scl i2c1 scl$		0 - Drive		)w					
Address: 0x16         Register name: ARD_0_FUNC_IO_RD_REG         Reset value: 0xff         Access: Read only         Bit $7$ $6$ $5$ $4$ $3$ $2$ $1$ $0$ Name $12C0\_scl$ $12c0\_scd$ $spi0\_cs$ $ar\_mosi$ $ar\_miso$ $ar\_sck$ $uart\_tx$ $uart\_tx$ Pin $13.1$ $J13.2$ $J13.8$ $J13.7$ $J13.6$ $J13.5$ $J14.7$ $J14.8$ Read from GPIO pins configured as inputs ('1' in register 0x13 and '1' in register 0x14).         Registers 0x17-0x1a are used to control Arduino pins that have specific function (I2C):         Use register 0x17 to select if a pin serves as GPIO or specific function (I2C):         Use register 0x17 to select if a pin serves as GPIO or specific function (I2C):         Use register 0x19 to write value to GPIO configured as output.         Use register 0x19 to write value to GPIO configured as input.         Ser register 0x11 to read value from GPIO configured as input.         Address: 0x17         Register name: ARD_1_FUNC_IO_SEL_REG         Register name: ARD_1_FUNC_IO_SEL_REG         Register name: ARD_1_1_FUNC_IO_SEL_REG		I - DIIVE	e de lo pinn	IBII					
Bit Name       7       6       5       4       3       2       1       0         Pin       i2c0_scl       i2c0_sda       spi0_cs       ar_mosi       ar_miso       ar_sck       uart_tx       uart_rx         Pin       J13.1       J13.2       J13.8       J13.7       J13.6       J13.5       J14.7       J14.8         Read from GPIO pins configured as inputs ('1' in register 0x13 and '1' in register 0x14).         Registers 0x17-0x1a are used to control Arduino pins that have specific function (I2C):         Use register 0x17 to select if a pin serves as GPIO or specific function         I2C).       Use register 0x18 to configure each GPIO pin as input or output.       Use register 0x19 to write value to GPIO configured as output.         Use register 0x11 to read value from GPIO configured as input.       Bit       7       6       5       4       3       2       1       0         Name         Bit       7       6       5       4       3       2       1       0         Name       -       -       -       -       -       -       -       12c1 scl       12c1 scl <th>Register 1 Reset val</th> <th>name: <b>ARD_</b>( ue: 0xff ead only</th> <th>0_FUNC_IO_</th> <th>_RD_REG</th> <th></th> <th></th> <th></th> <th></th> <th></th>	Register 1 Reset val	name: <b>ARD_</b> ( ue: 0xff ead only	0_FUNC_IO_	_RD_REG					
Bit Name       7       6       5       4       3       2       1       0         Name       i2c0_scl       i2c0_scl       i2c0_scl       spi0_cs       ar_mosi       ar_miso       ar_sck       uart_tx       uart_rx         Pin       J13.1       J13.2       J13.8       J13.7       J13.6       J13.5       J14.7       J14.8         Read from GPIO pins configured as inputs ('1' in register 0x13 and '1' in register 0x14).         Registers 0x17-0x1a are used to control Arduino pins that have specific function (I2C): Use register 0x17 to select if a pin serves as GPIO or specific function (I2C).         Use register 0x18 to configure each GPIO pin as input or output.         Use register 0x19 to write value to GPIO configured as output.         Use register 0x19 to write value from GPIO configured as input.         Bit 7       6       5       4       3       2       1       0         Name       -       -       -         Pin         Segister 0x17       Segister 0x18 to configured as inputs after reset.         Address: 0x17         Register name: ARD_1_FUNC_I0_SEL_REG         Register name: ARD_1_SUC_IO_SEL_REG	ACC233. N				1				
Name       i2c0_scl       i2c0_sda       spi0_cs       ar_mosi       ar_miso       ar_sck       uart_tx       uart_rx         Pin       J13.1       J13.2       J13.8       J13.7       J13.6       J13.5       J14.7       J14.8         Read from GPIO pins configured as inputs ('1' in register 0x13 and '1' in register 0x14).         Registers 0x17-0x1a are used to control Arduino pins that have specific function (I2C):         Use register 0x17 to select if a pin serves as GPIO or specific function (I2C):         Use register 0x18 to configure each GPIO pin as input or         Output.         Use register 0x19 to write value to GPIO configured as output.         Use register 0x19 to write value to GPIO configured as input.         Output.         Use register 0x11 to read value from GPIO configured as input.         Output.         Use register 0x11 to read value from GPIO configured as input.         Address: 0x17         Register name: ARD_1_FUNC_IO_SEL_REG         Reset value: 0xff         Access: Read/Write         Bit       7       6       5       4       3       2       1       0         Name <td< td=""><td>Bit</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></td<>	Bit	7	6	5	4	3	2	1	0
PinJ13.1J13.2J13.8J13.7J13.6J13.5J14.7J14.8Read from GPIO pins configured as inputs ('1' in register 0x13 and '1' in register 0x14).Registers 0x17-0x1a are used to control Arduino pins that have specific function (I2C): Use register 0x17 to select if a pin serves as GPIO or specific function (I2C). Use register 0x18 to configure each GPIO pin as input or butput. Use register 0x19 to write value to GPIO configured as output. Use register 0x1a to read value from GPIO configured as input. By default all GPIO pins configured as inputs after reset.Address: 0x17 Register name: ARD_1_FUNC_IO_SEL_REG Reset value: 0xff Access: Read/WriteBit76543210Name	Name	i2c0_scl	i2c0_sda	spi0_cs	ar_mosi	ar_miso	ar_sck	uart_tx	uart_rx
Read from GPIO pins configured as inputs ('1' in register 0x13 and '1' in register 0x14).         Register 0x17-0x1a are used to control Arduino pins that have specific function (I2C):         Use register 0x17 to select if a pin serves as GPIO or specific function [I2C].         Use register 0x18 to configure each GPIO pin as input or output.         Use register 0x19 to write value to GPIO configured as output.         Use register 0x19 to write value to GPIO configured as input.         Use register 0x19 to write value to GPIO configured as input.         Use register 0x11 to read value from GPIO configured as input.         Use register 0x12 to configured as inputs after reset.         Address: 0x17         Register name: ARD_1_FUNC_IO_SEL_REG         Register value: 0xff         Access: Read/Write         Bit       7       6       5       4       3       2       1       0         Name       -       -       -       -	Pin	J13.1	J13.2	J13.8	J13.7	J13.6	J13.5	J14.7	J14.8
Address: 0x17 Register name: ARD_1_FUNC_IO_SEL_REG Reset value: 0xff Access: Read/Write Bit 7 6 5 4 3 2 1 0 Name i2c1 scl i2c1 sd									
Bit         7         6         5         4         3         2         1         0           Name         -         -         -         -         -         i2c1 scl         i2c1 scl	Registers Use reg (I2C). Use reg output. Use reg Use reg By defaul	0x17-0x1a ;ister 0x17 to ;ister 0x18 to ;ister 0x19 to ;ister 0x1a to lt all GPIO p	are used to o select if a o configure o write valu o read value ins configur	control Arc pin serves a each GPIO e to GPIO c e from GPIO ed as input	luino pins t as GPIO or s pin as input onfigured a configured s after rese	hat have sp specific fund t or Is output. I as input. t.	ecific funct tion	ion (I2C):	
Bit         7         6         5         4         3         2         1         0           Name         -         -         -         -         -         -         i2c1 scl         i2c1	Registers Use reg (I2C). Use reg output. Use reg By defaul Address: Register r Reset val	0x17-0x1a vister 0x17 to vister 0x18 to vister 0x19 to vister 0x1a to lt all GPIO p 0x17 name: ARD_i ue: 0xff ead/Write	are used to o select if a o configure o write valu o read value ins configur 1_FUNC_IO_	control Arc pin serves a each GPIO c e to GPIO c from GPIO ed as input	luino pins t as GPIO or s pin as inpur onfigured a ) configured s after rese	hat have sp specific fund t or Is output. I as input. t.	ecific funct tion	ion (I2C):	
Name   -   -   -   -   -   i2c1 scl i2c1 sd	Registers Use reg (I2C). Use reg output. Use reg By defaul Address: Register r Register r Reset val Access: R	0x17-0x1a gister 0x17 to gister 0x18 to gister 0x18 to gister 0x19 to gister 0x1a to lt all GPIO p 0x17 name: ARD_ ue: 0xff ead/Write	are used to o select if a o configure o write valu o read value ins configur	control Arc pin serves a each GPIO e to GPIO c from GPIO ed as input	luino pins t as GPIO or s pin as input onfigured a configured s after rese	hat have sp specific fund t or Is output. I as input. t.	ecific funct tion	ion (I2C):	
	Registers Use reg (I2C). Use reg output. Use reg By defaul Address: Register r Register r Reset val Access: R	0x17-0x1a vister 0x17 to vister 0x18 to vister 0x19 to vister 0x19 to vister 0x19 to vister 0x19 to vister 0x19 to vister 0x17 name: ARD_i ue: 0xff ead/Write	are used to o select if a o configure o write valu o read value ins configur 1_FUNC_IO_ 6	control Arc pin serves a each GPIO c e to GPIO c from GPIO ed as input	luino pins t as GPIO or s pin as input onfigured a configured s after rese	hat have sp specific fund t or Is output. I as input. t.	ecific funct tion	ion (I2C):	0

	Select if A 0 - Pin is	rduino pin i sused for s	s used as Gl becific funct	PIO or speci ion (I2C)	fic function	ı (I2C):		
	1 - Pinis	used as GF	010					
	Default ·	- 1 (GPIO)						
Address	)v18							
Register n	ame.							
ARD_1_FU		NF_REG						
Reset valu	ue: 0xff							
Access: Re	ead/Write							
			1				1	
Bit	7	6	5	4	3	2	1	0
Name	-	-	-	-	-	-	i2c1_scl	i2c1_sda
Pin	-	-	-	-	-	-	J17.6	J17.5
Address: (	)x19							
Address: ( Register n <b>ARD_1_FL</b> Reset valu Access: Re	0x19 ame: JNC_IO_WR ue: 0x00 ead/Write	_REG						
Address: ( Register n <b>ARD_1_FL</b> Reset valu Access: Re	0x19 ame: JNC_IO_WR ue: 0x00 ead/Write	_REG						
Address: ( Register n <b>ARD_1_FL</b> Reset valu Access: Re Bit	0x19 ame: JNC_IO_WR ue: 0x00 ead/Write 7	_ <b>REG</b>	5	4	3	2	1	0
Address: ( Register n <b>ARD_1_FL</b> Reset valu Access: Re Bit Name	0x19 ame: JNC_IO_WR ue: 0x00 ead/Write 7 -	_ <b>REG</b>	5	4	3	2	1 i2c1_scl	0 i2c1_sda
Address: ( Register n <b>ARD_1_FL</b> Reset valu Access: Re Bit Name Pin	0x19 ame: JNC_IO_WR ue: 0x00 ead/Write 7 - -	_REG 	5 - -	4	3 - -	2 - -	1 i2c1_scl J17.6	0 i2c1_sda J17.5
Address: ( Register n <b>ARD_1_FL</b> Reset valu Access: Re Bit Name Pin	Dx19 ame: JNC_IO_WR Je: 0x00 ead/Write 7 - - - Write to G 0 - Drive 1 - Drive	_REG 6 - GPIO pins co c GPIO pin lo c GPIO pin h	5 - - onfigured as ow igh	4 - - outputs ('1	3 - - ' in register	2 - - 0x17 and '(	1 i2c1_scl J17.6 D' in register	0 i2c1_sda J17.5 r 0x18):
Address: ( Register n <b>ARD_1_FL</b> Reset valu Access: Re Bit Name Pin	Dx19 ame: JNC_IO_WR ue: 0x00 ead/Write 7 - - - Write to G 0 - Drive 1 - Drive	_REG 	5 - - onfigured as ow igh	4 - - outputs ('1	3 - - ' in register	2 - - 0x17 and '(	1 i2c1_scl J17.6 D' in register	0 i2c1_sda J17.5 r 0x18):
Address: ( Register n <b>ARD_1_FL</b> Reset valu Access: Re Bit Name Pin Address: (	Dx19 ame: JNC_IO_WR ue: 0x00 ead/Write 7 - - Write to G 0 - Drive 1 - Drive	_REG 	5 - - onfigured as ow igh	4 - - outputs ('1	3 - - ' in register	2 - - 0x17 and '(	1 i2c1_scl J17.6 D' in register	0 i2c1_sda J17.5 r 0x18):
Address: ( Register n ARD_1_FL Reset valu Access: Re Bit Name Pin Address: ( Register n	Dx19 ame: JNC_IO_WR ue: 0x00 ead/Write 7 - Write to G 0 - Drive 1 - Drive 0x1a ame: ARD_1	_REG 6 	5 - onfigured as ow igh	4 - - outputs ('1	3 - - ' in register	2 - - 0x17 and '(	1 i2c1_scl J17.6 D' in register	0 i2c1_sda J17.5 r 0x18):
Address: ( Register n ARD_1_FL Reset valu Access: Re Bit Name Pin Address: ( Register n Reset valu	Dx19 ame: JNC_IO_WR ue: 0x00 ead/Write 7 - - Write to G 0 - Drive 1 - Drive 1 - Drive Dx1a ame: ARD_1 ue: 0x03	_REG 6  ;PIO pins co : GPIO pin h : GPIO pin h	5 - onfigured as ow igh _ <b>RD_REG</b>	4 - - outputs ('1	3 - - ' in register	2 - - 0x17 and '(	1 i2c1_scl J17.6 D' in register	0 i2c1_sda J17.5 r 0x18):
Address: ( Register n ARD_1_FL Reset valu Access: Re Bit Name Pin Address: ( Register n Reset valu Access: Re	Dx19 ame: JNC_IO_WR ue: 0x00 ead/Write 7 - - Write to G 0 - Drive 1 - Drive Dx1a ame: ARD_1 ue: 0x03 ead only	_REG 	5 - onfigured as ow igh _RD_REG	4 - - outputs ('1	3 - - ' in register	2 - - 0x17 and '(	1 i2c1_scl J17.6 D' in register	0 i2c1_sda J17.5 r 0x18):

Name	-	-	-	-	-	-	i2c1_scl	i2c1_sd
Pin	-	-	-	-	-	-	J17.6	J17.5
Registers	Read fron 0x30-0x35	n GPIO pins	configured	as inputs (':	1' in register	<sup>•</sup> 0x17 and ' PIO pins:	1' in registe	er 0x18).
Use reg Use reg Use reg By defaul	isters 0x30- ister 0x32-0 ister 0x34-0 t all GPIO p	0x31 to con )x33 to read )x35 to writ ins configur	figure each I value of G e value to G ed as input	GPIO as in PIO configu GPIO configu s after rese	put or outp red as inpu ured as out et.	ut. t. put.		
Address:	0x30							
Register r	name: <b>RPI_IC</b>	D_CONF_RE	G_0					
Reset val	ue: 0xff							
Access: R	ead/Write							
D:+	7	C		4	2	2	1	0
BIL								
Din	126.7	126.19	126.16	126.15	126.12	126 11	126.21	126.20
	Raspberry 1 - Set I 0 - Set I Default	y Pi GPIO co O pin as Inp O pin as Out - 1 (Input)	nfiguration ut :put	:				
Address: Register r Reset val Access: R	0x31 hame: <b>RPI_IC</b> ue: 0xff ead/Write	D_CONF_RE	G_1					
Bit	7	6	5	4	3	2	1	0
Name	-	-	GPIO18	GPIO25	GPIO12	GPIO16	GPIO26	GPIO13
Pin	-	-	J26.12	J26.22	J26.32	J26.36	J26.37	J26.33
	Raspberry	y Pi GPIO co	nfiguration	:				

Name Pin         GPIO4         GPIO24         GPIO23         GPIO22         GPIO27         GPIO17         GPIO6         G           Address:         J26.7         J26.18         J26.16         J26.15         J26.13         J26.11         J26.31         J2           Read value from Raspberry Pi GPIO pins configured as inputs.   Address: 0x33 Register name: RPI_IO_RD_REG_1 Reset value: 0xff Access: Read only           Bit         7         6         5         4         3         2         1         2           Pin         -         -         GPIO18         GPIO12         GPIO16         GPIO26         GP           Address: Read only         -         -         GPIO18         GPIO25         GPIO12         GPIO16         GPIO26         GP           Pin         -         -         J26.12         J26.22         J26.32         J26.36         J26.37         J2           Address: 0x34           Register name: RPI_IO_WR_REG_0           Reset value: 0x00         Access: Read/Write         GPIO         GPIO	Name	/	6	5	4	3	2	1	0
Pin         J26.7         J26.18         J26.16         J26.15         J26.13         J26.11         J26.31         J2           Read value from Raspberry Pi GPIO pins configured as inputs.           Address: 0x33           Register name: RPI_IO_RD_REG_1           Reset value: 0xff           Access: Read only           Bit         7         6         5         4         3         2         1         0           Pin         -         -         GPI018         GPI025         GPI012         GPI016         GPI026         GP           Read value from Raspberry Pi GPIO pins configured as inputs.	D:~	GPIO4	GPIO24	GPIO23	GPIO22	GPIO27	GPIO17	GPIO6	GPIO5
Read value from Raspberry Pi GPIO pins configured as inputs.         Address: 0x33         Register name: RPI_IO_RD_REG_1.         Reset value: 0xff         Access: Read only         Bit       7       6       5       4       3       2       1       6         Name       -       -       GPI018       GPI025       GPI012       GPI016       GPI026       GPI         Pin       -       -       J26.12       J26.22       J26.32       J26.36       J26.37       J2         Address: 0x34       Register name: RPI_IO_WR_REG_0       Reset value: 0x00       Access: 0x30       Access: 0x30       Access: 0x30	PIN	J26.7	J26.18	J26.16	J26.15	J26.13	J26.11	J26.31	J26.29
Address: 0x33 Register name: <b>RPI_IO_RD_REG_1</b> Reset value: 0xff Access: Read only Bit 7 6 5 4 3 2 1 Name - GPI018 GPI025 GPI012 GPI016 GPI026 GF Pin - J26.12 J26.22 J26.32 J26.36 J26.37 J2 Read value from Raspberry Pi GPIO pins configured as inputs. Address: 0x34 Register name: <b>RPI_IO_WR_REG_0</b> Reset value: 0x00 Access: Paad (Write)		Read valu	iefrom Rasp	oberry Pi GP	10 pins con	figured as i	nputs.		
Bit       7       6       5       4       3       2       1         Name       -       -       GPIO18       GPIO25       GPIO12       GPIO16       GPIO26       GF         Pin       -       -       J26.12       J26.22       J26.32       J26.36       J26.37       J2         Read value from Raspberry Pi GPIO pins configured as inputs.         Address: 0x34         Register name: RPI_IO_WR_REG_0         Reset value: 0x00         Accors : Poad /Write	Address: Register Reset va Access: F	0x33 name: <b>RPI_IC</b> lue: 0xff Read only	)_RD_REG_	1					
Dit       y       0       3       4       3       2       1         Name       -       -       GPI018       GPI025       GPI012       GPI016       GPI026       GF         Pin       -       -       J26.12       J26.22       J26.32       J26.36       J26.37       J2         Read value from Raspberry Pi GPIO pins configured as inputs.         Address: 0x34         Register name: RPI_IO_WR_REG_0         Reset value: 0x00         Accorse: Pond/Write	Ri+	7	6	5	Δ	3	2	1	0
Pin       -       J26.12       J26.22       J26.32       J26.36       J26.37       J2         Read value from Raspberry Pi GPIO pins configured as inputs.         Address: 0x34         Register name: RPI_IO_WR_REG_0         Reset value: 0x00         Accors: Paad/Write	Name	-	-		4 GPI025	GPI012	2 GPI016		GPI013
Read value from Raspberry Pi GPIO pins configured as inputs.         Address: 0x34         Register name: RPI_IO_WR_REG_0         Reset value: 0x00         Access: Pood (Write)	Pin	-	-	126.12	126.22	126.32	126.36	126.37	126.33
	Address: Register Reset va	0x34 name: <b>RPI_I(</b> lue: 0x00	D_WR_REG_	_0					
ALLESS. NEdu/ WITLE		lead/Write							
Bit 7 6 5 4 3 2 1	Access: F			1		2	2	1	0
Name GPIO4 GPIO24 GPIO23 GPIO22 GPIO27 GPIO17 GPIO6 G	Access: F Bit	7	6	5	4	5			
Pin J26.7 J26.18 J26.16 J26.15 J26.13 J26.11 J26.31 J2	Access: F Bit Name	7 GPIO4	6 GPIO24	5 GPIO23	4 GPIO22	GPIO27	GPIO17	GPIO6	GPI05
Write to Raspberry Pi GPIO pins configured as outputs.	Access:F Bit Name Pin	7 GP1O4 J26.7	6 GPIO24 J26.18	5 GPIO23 J26.16	4 GPIO22 J26.15	GPIO27 J26.13	GPIO17 J26.11	GPIO6 J26.31	GPIO5 J26.29
0 - Drive GPIO pin low 1 - Drive GPIO pin high	Access: F Bit Name Pin	7 GPIO4 J26.7 Write to F	6 GPIO24 J26.18 Raspberry Pi	5 GPIO23 J26.16 GPIO pins o	4 GPIO22 J26.15 configured a	GPIO27 J26.13	GPIO17 J26.11	GPIO6 J26.31	GPIO5 J26.29



Configuration for pins set to be used as GPIO ('1' in register 0x36):

1 - Set IO pin as Input

- 0 Set IO pin as Output
- Default 1 (Input)

Address: 0x38

Register name: RPI\_0\_FUNC\_IO\_W R\_REG

Reset value: 0x00

Access: Read/Write

Bit	7	6	5	4	3	2	1	0
				SPI1	SPI1	SPI1	UART	UART
Name	-	-	SP1 CE	MOSI	MISO	SCLK	TXD	RXD
Pin	-	-	J26.26	J26.38	J26.35	J26.40	J26.8	J26.10

Write to GPIO pins configured as outputs ('1' in register 0x36 and '0' in register 0x37):

0 - Drive GPIO pin low

1 - Drive GPIO pin high

Address: 0x39

Register name: RPI\_0\_FUNC\_IO\_RD\_REG

Reset value: 0x3f

Access: Read only

Bit	7	6	5	4	3	2	1	0
				SPI1	SPI1	SPI1	UART	UART
Name	-	-	SP1 CE	MOSI	MISO	SCLK	TXD	RXD
Pin	-	-	J26.26	J26.38	J26.35	J26.40	J26.8	J26.10

Read from GPIO pins configured as inputs ('1' in register 0x36 and '1' in register 0x37).

Registers 0x3a-0x3d are used to control RPi pins that have specific function (I2C, SPI, UART):

Use register 0x3a to select if a pin serves as GPIO or specific function (I2C, SPI, UART) Use register 0x3b to configure each GPIO pin as input or

output.

Use register 0x3c to write value to GPIO configured as output.

Use register 0x3d to read value from GPIO configured as

input.

By default all GPIO pins configured as inputs after reset.

Address: 0x3a

Dit	7	6	5	4	3	2	1	0
		I2C1	12C0	I2C0		SPI0	SPIO	SPI0
Name	I2C1 SCL	SDA	SCLK	SDA	SPI0 CE	MOSI	MISO	SCLK
Pin	J26.5	J26.3	J26.28	J26.27	J26.24	J26.19	J26.21	J26.23
	Select if R	Pi pin is us	ed as GPIO o	or specific f	unction (I2C	, SPI, UART)	:	
	0 - Pinis	used for s	pecific funct	tion (I2C, SP	I, UART)			
	1 - Pinis	used as GF	2010					
	Default -	• 1 (GPIO)						
Address:	0x3b							
Register i	name:							
RPI_1_FU		F_REG						
Reset val	ue: 0xff							
Access: R	ead/Write							
D:+	7	6			2	2	1	0
BIT	/	6	5	4	3	2		
Name	12C1 SCL	SDA	SCLK	SDA	SPI0 CE	MOSI	MISO	SCLK
Pin	J26.5	J26.3	J26.28	J26.27	J26.24	J26.19	J26.21	J26.23
			1					
	Configura	tion for pin	is set to be u	used as GPI	0 ('1' in regi	ster Ox3a):		
	Configura 1 - Set IC	tion for pin	is set to be ι ωt	ised as GPI	0 ('1' in regi	ster 0x3a):		
	Configura 1 - Set IC	tion for pin ) pin as Inp ) pin as Qu	is set to be u out tout	ised as GPI	0 ('1' in regi	ster 0x3a):		
	Configura 1 - Set IC 0 - Set IC	tion for pin ) pin as Inp ) pin as Ou 1 (Input)	is set to be u out tput	used as GPI	0 ('1' in regi	ster 0x3a):		
	Configura 1 - Set IC 0 - Set IC Default -	tion for pin D pin as Inp D pin as Ou • 1 (Input)	us set to be u out tput	used as GPI	0 ('1' in regi	ster 0x3a):		
	Configura 1 - Set IC 0 - Set IC Default -	tion for pin D pin as Inp D pin as Ou • 1 (Input)	is set to be u out tput	used as GPI	0 ('1' in regi	ster 0x3a):		
	Configura 1 - Set IC 0 - Set IC Default -	tion for pin ) pin as Inp ) pin as Ou - 1 (Input)	is set to be u out tput	used as GPI	0 ('1' in regi	ster 0x3a):		
Address:	Configura 1 - Set IC 0 - Set IC Default - 0x3c	tion for pin ) pin as Inp ) pin as Ou · 1 (Input)	is set to be u out tput	used as GPI	0 ('1' in regi	ster 0x3a):		
Address: Register 1	Configura 1 - Set IC 0 - Set IC Default - 0x3c name: <b>RPI_1</b>	tion for pin O pin as Inp O pin as Ou O 1 (Input) <b>_FUNC_IO_</b>	s set to be u out tput WR_REG	used as GPI	O ('1' in regi	ster 0x3a):		
Address: Register 1 Reset val	Configura 1 - Set IC 0 - Set IC Default - 0x3c name: <b>RPI_1_</b> ue: 0x00	tion for pin O pin as Inp O pin as Ou O 1 (Input) <b>_FUNC_IO_</b>	wR_REG	used as GPI	O ('1' in regi	ster 0x3a):		
Address: Register 1 Reset val Access: R	Configura 1 - Set IC 0 - Set IC Default - 0x3c name: <b>RPI_1_</b> ue: 0x00 ead/Write	tion for pin O pin as Inp O pin as Ou O 1 (Input) <b>_FUNC_IO_</b>	s set to be u out tput WR_REG	used as GPI	0 ('1' in regi	ster 0x3a):		
Address: Register 1 Reset val Access: R	Configura 1 - Set IC 0 - Set IC Default - 0x3c name: <b>RPI_1</b> ue: 0x00 ead/Write	tion for pin 0 pin as Inp 0 pin as Ou - 1 (Input) _ <b>FUNC_IO_</b>	wR_REG	used as GPI	0 ('1' in regi	ster 0x3a):		
Address: Register 1 Reset val Access: R Bit	Configura 1 - Set IC 0 - Set IC Default - 0x3c name: <b>RPI_1</b> ue: 0x00 ead/Write 7	tion for pin O pin as Inp O pin as Ou O 1 (Input) <b>_FUNC_IO_</b>	s set to be u out tput WR_REG	used as GPI	O ('1' in regi	2	1	0
Address: Register i Reset val Access: R Bit	Configura 1 - Set IC 0 - Set IC Default - 0x3c name: <b>RPI_1</b> ue: 0x00 ead/Write 7	tion for pin O pin as Inp O pin as Ou O 1 (Input) <b>_FUNC_IO_</b> 6 I2C1	s set to be u out tput WR_REG 5 12C0	4 12C0	0 ('1' in regi	2 SPI0	1 SPI0	0 SP10
Address: Register i Reset val Access: R Bit Name	Configura 1 - Set IC 0 - Set IC Default - 0x3c name: <b>RPI_1</b> ue: 0x00 ead/Write 7 12C1 SCL	tion for pin O pin as Inp O pin as Ou O 1 (Input) FUNC_IO_ 6 I2C1 SDA	s set to be u out tput WR_REG 5 I2C0 SCLK	4 12C0 SDA	O ('1' in regi	2 SPI0 MOSI	1 SPI0 MISO	0 SPI0 SCLK

Address:	0x3d									
Register ı	name: <b>RPI_1</b> _	FUNC_IO_	RD_REG							
Reset val	<pre>{eset value: 0xff</pre>									
Access: R	ead only									
Ri+	7	6	5	4	2	2	1	0		
DIL	/	12C1	1200	4	5	SPI0	SPI0	SPIO		
Name	I2C1 SCL	SDA	SCLK	SDA	SPI0 CE	MOSI	MISO	SCLK		
Pin	J26.5	J26.3	J26.28	J26.27	J26.24	J26.19	J26.21	J26.23		
۵ddress	0xa0									
Register i	uxau	FG								
Reset val										
	ead/Write									
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,										
	MSB							LSB		
Bit	MSB 7	6	5	4	3	2	1	LSB 0		
Bit Name	MSB 7 -	6 -	5	4	3 LED3	2 LED2	1 LED1	LSB 0 LED0		
Bit Name	MSB 7 - Turn user on/off: 0 - LED o 1 - LED o	6 - LED ff n	5	4	3 LED3	2 LED2	1 LED1	LSB 0 LED0		
Bit Name Address: Register r Reset val Access: R	MSB 7 - Turn user on/off: 0 - LED o 1 - LED o 0xa 1 name: SWITC ue: 0x00 ead only MSB	6 - LED ff n <b>H_REG</b>	5	4	3 LED3	2 LED2	1 LED1	LSB 0 LED0		
Bit Name Address: Register n Reset val Access: R Bit	MSB 7 - Turn user on/off: 0 - LED o 1 - LED o 0xa1 name: SWITC ue: 0x00 ead only MSB 7	6 - LED ff n <b>H_REG</b>	5	4	3 LED3	2 LED2	1 LED1	LSB 0 LED0 LED0		

# 7. Document Revision History

Revision	Date	Author	Status and Description
0.9	20/12/2018	Guy Zohar	Initial version