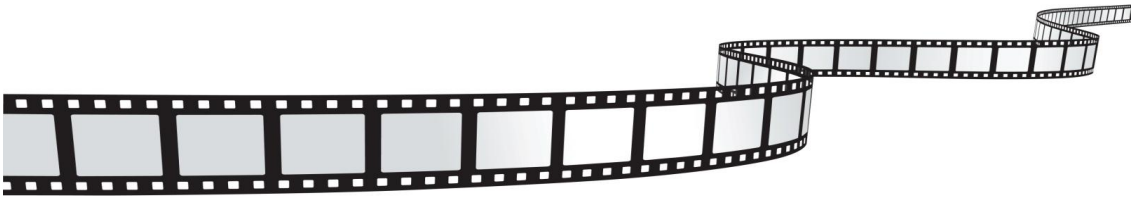
18.08.10



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Contents

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Chapter 1

Introduction

This document describes the lower level "Brd" Drivers that are provided for use with Myriad2. The Myriad2 Platform Data Sheet may also be used as a cross reference.

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Chapter 2

Data Structure Index

2.1 Data Structures

Here are the data structures with brief descriptions:

Chapter 3

File Index

3.1 File List

Here is a list of all files with brief descriptions:

Chapter 4

Data Structure Documentation

4.1 tyAdcChannelConfig Struct Reference

`#include <brdMv0198Defines.h>`

Data Fields

- tyMcpDeviceId mcpDeviceId
- tyMcpChannel mcpChannel
- double channelMultiplier
- double railNominalV
- tyMcp3424Config * optMcpChanCfg

4.1.1 Field Documentation

double tyAdcChannelConfig::channelMultiplier

tyMcpChannel tyAdcChannelConfig::mcpChannel

tyMcpDeviceId tyAdcChannelConfig::mcpDeviceId

tyMcp3424Config* tyAdcChannelConfig::optMcpChanCfg

double tyAdcChannelConfig::railNominalV

4.2 tyAdcContinuousConfig Struct Reference

`#include <brdMv0198Defines.h>`

Data Fields

- tyAdcAChannel aChannel
- tyAdcBChannel bChannel
- tyAdcCChannel cChannel
- tyAdcDChannel dChannel

4.2.1 Field Documentation

tyAdcAChannel tyAdcContinuousConfig::aChannel

tyAdcBChannel tyAdcContinuousConfig::bChannel

tyAdcCChannel tyAdcContinuousConfig::cChannel

tyAdcDChannel tyAdcContinuousConfig::dChannel

4.3 tyAdcContinuousResult Struct Reference

`#include <brdMv0198Defines.h>`

Data Fields

- tyAdcResult adcAResult
- tyAdcResult adcBResult
- tyAdcResult adcCResult
- tyAdcResult adcDResult

4.3.1 Field Documentation

tyAdcResult tyAdcContinuousResult::adcAResult

tyAdcResult tyAdcContinuousResult::adcBResult

tyAdcResult tyAdcContinuousResult::adcCResult

tyAdcResult tyAdcContinuousResult::adcDResult

4.4 tyAdcResult Struct Reference

`#include <brdMv0198Defines.h>`

Data Fields

- float adcValue
- int bNewSample
- tyChannelId chanId

4.4.1 Field Documentation

float tyAdcResult::adcValue

int tyAdcResult::bNewSample

tyChannelId tyAdcResult::chanId

4.5 tyAdcResultAllRails Struct Reference

`#include <brdMv0198Defines.h>`

Data Fields

- float adcResults [DEFAULT_NUM_RAILS]
- float totalMilliAmps
- float totalMilliWatts

4.5.1 Field Documentation

float tyAdcResultAllRails::adcResults[**DEFAULT_NUM_RAILS**]

float tyAdcResultAllRails::totalMilliAmps

float tyAdcResultAllRails::totalMilliWatts

4.6 tyBrd198Handle Struct Reference

`#include <brdMv0198Defines.h>`

Data Fields

- I2CM_Device * i2cDev
- tyMcp3424Handle mcpHandle [4]
- tyAdcChannelConfig * adcConfig
- u32 numAdcChannels
- tyAdcContinuousConfig continuousCfg

4.6.1 Field Documentation

tyAdcChannelConfig* tyBrd198Handle::adcConfig

tyAdcContinuousConfig tyBrd198Handle::continuousCfg

I2CM_Device* tyBrd198Handle::i2cDev

tyMcp3424Handle tyBrd198Handle::mcpHandle[4]

u32 tyBrd198Handle::numAdcChannels

4.7 tyOsBoard0182Configuration Struct Reference

`#include <OsBrdMv0182.h>`

Data Fields

- tyOsBoard0182ConfigType type
- int value

4.7.1 Field Documentation

tyOsBoard0182ConfigType tyOsBoard0182Configuration::type

int tyOsBoard0182Configuration::value

4.8 tyRailLookup Struct Reference

```
#include <brdMv0198Defines.h>
```

Data Fields

- u32 railId
- char railName [MAX_RAIL_STRING_LEN]

4.8.1 Field Documentation

u32 tyRailLookup::railId

char tyRailLookup::railName[**MAX_RAIL_STRING_LEN**]

Chapter 5

File Documentation

5.1 include/brdGpioCfgs/brdMv0182GpioDefaults.h File Reference

Default GPIO configuration for the MV0182 Board.

```
#include <DrvGpioDefines.h>
```

Variables

- const drvGpioInitArrayType brdMV0182GpioCfgDefault
- const drvGpioInitArrayType brdMV0182R2R3GpioCfgDefault

5.1.1 Detailed Description

Default GPIO configuration for the MV0182 Board.

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Using the structure defined by this board it is possible to initialize some of the GPIOS on the MV0182 PCB to good safe initial defaults

5.1.2 Variable Documentation

const drvGpioInitArrayType brdMV0182GpioCfgDefault

const drvGpioInitArrayType brdMV0182R2R3GpioCfgDefault

5.2 include/brdGpioCfgs/brdMv0182R2GpioDefaults.h File Reference

Default GPIO configuration for the MV0182 Board.

```
#include "brdMv0182GpioDefaults.h"
```

Macros

- #define brdMV0182R2GpioCfgDefault brdMV0182R2R3GpioCfgDefault

5.2.1 Detailed Description

Default GPIO configuration for the MV0182 Board.

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Using the structure defined by this board it is possible to initialize some of the GPIOS on the MV0182 PCB to good safe initial defaults

5.2.2 Macro Definition Documentation

#define brdMV0182R2GpioCfgDefault **brdMV0182R2R3GpioCfgDefault**

5.3 include/brdGpioCfgs/brdMv0182R3GpioDefaults.h File Reference

Default GPIO configuration for the MV0182 Board.

```
#include "brdMv0182GpioDefaults.h"
```

Macros

- #define brdMV0182R3GpioCfgDefault brdMV0182R2R3GpioCfgDefault

5.3.1 Detailed Description

Default GPIO configuration for the MV0182 Board.

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Using the structure defined by this board it is possible to initialize some of the GPIOS on the MV0182 PCB to good safe initial defaults

5.3.2 Macro Definition Documentation

#define brdMV0182R3GpioCfgDefault **brdMV0182R2R3GpioCfgDefault**

5.4 include/brdGpioCfgs/brdMv0182R4GpioDefaults.h File Reference

Default GPIO configuration for the MV0182 Board.

```
#include "brdMv0182GpioDefaults.h"
```

Macros

- #define brdMV0182R4GpioCfgDefault brdMV0182R2R3GpioCfgDefault

5.4.1 Detailed Description

Default GPIO configuration for the MV0182 Board.

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Using the structure defined by this board it is possible to initialize some of the GPIOS on the MV0182 PCB to good safe initial defaults

5.4.2 Macro Definition Documentation

#define brdMV0182R4GpioCfgDefault **brdMV0182R2R3GpioCfgDefault**

5.5 include/brdGpioCfgs/brdMv0182R5GpioDefaults.h File Reference

Default GPIO configuration for the MV0182 Board.

```
#include "brdMv0182GpioDefaults.h"
```

Macros

- #define brdMV0182R5GpioCfgDefault brdMV0182R2R3GpioCfgDefault

5.5.1 Detailed Description

Default GPIO configuration for the MV0182 Board.

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Using the structure defined by this board it is possible to initialize some of the GPIOS on the MV0182 PCB to good safe initial defaults

5.5.2 Macro Definition Documentation

#define brdMV0182R5GpioCfgDefault **brdMV0182R2R3GpioCfgDefault**

5.6 include/brdGpioCfgs/brdMv0184GpioDefaults.h File Reference

Default GPIO configuration for the MV0184 Board.

```
#include <DrvGpioDefines.h>
```

Variables

- const drvGpioInitArrayType brdMv0184GpioCfgDefault

5.6.1 Detailed Description

Default GPIO configuration for the MV0184 Board.

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Using the structure defined by this board it is possible to initialise some of the GPIOS on the MV0184 PCB to good safe initial defauls (to be updated with other GPIOS)

5.6.2 Variable Documentation

const drvGpioInitArrayType brdMv0184GpioCfgDefault

5.7 include/brdGpioCfgs/brdMv0189GpioDefaults.h File Reference

Default GPIO configuration for the MV0189 Board.

```
#include <DrvGpioDefines.h>
```

Variables

- const drvGpioInitArrayType brdMv0189GpioCfgDefault

5.7.1 Detailed Description

Default GPIO configuration for the MV0189 Board.

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Using the structure defined by this board it is possible to initialise some of the GPIOS on the MV0189 PCB to good safe initial defauls (to be updated with other GPIOS)

5.7.2 Variable Documentation

const drvGpioInitArrayType brdMv0189GpioCfgDefault

5.8 include/brdGpioCfgs/brdMv0191GpioDefaults.h File Reference

Default GPIO configuration for the MV0191 Board.

```
#include <DrvGpioDefines.h>
```

Variables

- const drvGpioInitArrayType brdMV0191GpioCfgDefault

5.8.1 Detailed Description

Default GPIO configuration for the MV0191 Board.

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Using the structure defined by this board it is possible to initialize some of the GPIOS on the MV0191 PCB to good safe initial defaults

5.8.2 Variable Documentation

const drvGpioInitArrayType brdMV0191GpioCfgDefault

Initial value:

```
=

{

        {22, 22 , ACTION_UPDATE_ALL
                ,
                PIN_LEVEL_HIGH
                ,
                D_GPIO_MODE_7           |
                D_GPIO_DIR_OUT          |
                D_GPIO_DATA_INV_OFF     |
                D_GPIO_WAKEUP_OFF
```

```
                ,
                D_GPIO_PAD_DEFAULTS
                 , NULL
        },


        {0,0    , ACTION_TERMINATE_ARRAY
                ,
                PIN_LEVEL_LOW
                ,
                D_GPIO_MODE_0
                ,
                D_GPIO_PAD_DEFAULTS
                 , NULL
        }

}
```

5.9 include/brdGpioCfgs/brdMv0202GpioDefaults.h File Reference

Default GPIO configuration for the MV0202 Board.

```
#include <DrvGpioDefines.h>
```

Variables

- const drvGpioInitArrayType brdMV0202GpioCfgDefault

5.9.1 Detailed Description

Default GPIO configuration for the MV0202 Board.

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Using the structure defined by this board it is possible to initialize some of the GPIOS on the MV0202 PCB to good safe initial defaults

5.9.2 Variable Documentation

const drvGpioInitArrayType brdMV0202GpioCfgDefault

5.10 include/brdMv0182.h File Reference

API for the MV0182 Board Driver.

```
#include <brdMv0182Defines.h>
#include <DrvI2cMaster.h>
```

Functions

- s32 brd182InitialiseI2C (tyI2cConfig *i2c0Cfg, tyI2cConfig *i2c1Cfg, tyI2cConfig *i2c2Cfg, I2CM_Device **i2c0Dev, I2CM_Device **i2c1Dev, I2CM_Device **i2c2Dev)
- s32 brd182GetPcbRevison (tyMv0182PcbRevision *)

  Returns the revision number of the PCB.
- s32 brd182ExternalPllConfigure (u32 configIndex)
- s32 brd182SetLed (I2CM_Device *i2cDevice, tyBrdLedId ledNum, tyLedState ledState)

5.10.1 Detailed Description

API for the MV0182 Board Driver.

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5.10.2 Function Documentation

s32 brd182ExternalPllConfigure (u32 configIndex)

Configures the External PLL to a given frequency

Parameters

in	*config_index*	(See "DrvCDCEL.h" for usable indexes)

Returns

> 0 on success, non-zero on fail

s32 brd182GetPcbRevison (**tyMv0182PcbRevision** *)

Returns the revision number of the PCB.

s32 brd182InitialiseI2C (tyI2cConfig * i2c0Cfg, tyI2cConfig * i2c1Cfg, tyI2cConfig * i2c2Cfg, I2CM_Device ** i2c0Dev, I2CM_Device ** i2c1Dev, I2CM_Device ** i2c2Dev)

Initialise the default configuration for I2C0,I2C1, I2C2 on the MV0182 Board

Parameters

in	*pointer*	to an I2C configuration structure for I2C0 (OR NULL to use board defaults)

in	*pointer*	to an I2C configuration structure for I2C1 (OR NULL to use board defaults)
in	*pointer*	to an I2C configuration structure for I2C2 (OR NULL to use board defaults)
out	*pointer*	to storage for an ∗I2CM_Device Handle for I2C Device 0
out	*pointer*	to storage for an ∗I2CM_Device Handle for I2C Device 1
out	*pointer*	to storage for an ∗I2CM_Device Handle for I2C Device 2

Returns

0 on Success

s32 brd182SetLed (I2CM_Device ∗ i2cDevice, **tyBrdLedId** ledNum, **tyLedState** ledState)

Helper function to control LEDS on MV0182

Parameters

in	*∗I2CM_Device*	Handle for I2C Device 2
in	*BRD_LED1*	or BRD_LED2
in	*LED_ON*	or LED_OFF

Returns

0 on Success

5.11 include/brdMv0182Defines.h File Reference

Definitions and types needed by the MV0182 Board Driver API.

Macros

- #define MV0182_OSC_IN_FREQ_KHZ 12000
- #define MV0182_I2C0_SCL_PIN (60)
- #define MV0182_I2C0_SDA_PIN (61)
- #define MV0182_I2C0_SPEED_KHZ_DEFAULT (100)
- #define MV0182_I2C0_ADDR_SIZE_DEFAULT (ADDR_7BIT)
- #define MV0182_I2C1_SCL_PIN (12)
- #define MV0182_I2C1_SDA_PIN (13)
- #define MV0182_I2C1_SPEED_KHZ_DEFAULT (100)
- #define MV0182_I2C1_ADDR_SIZE_DEFAULT (ADDR_7BIT)
- #define MV0182_I2C2_SCL_PIN (79)
- #define MV0182_I2C2_SDA_PIN (80)
- #define MV0182_I2C2_SPEED_KHZ_DEFAULT (100)
- #define MV0182_I2C2_ADDR_SIZE_DEFAULT (ADDR_7BIT)
- #define MV0182_WM8325_I2C_ADDR_7BIT (0x36)
- #define MV0182_PIN_CAM_A_GPIO0_N (59)
- #define MV0182_PIN_CAM_B_GPIO0_N (15)

- #define MV0182_PIN_COM_IO5_N (56)
- #define MV0182_PIN_AP_IRQ (22)
- #define MV0182_REV_DETECT (9)
- #define CAM_A1_MIPICTRL MIPI_CTRL_0
- #define CAM_B1_MIPICTRL MIPI_CTRL_2
- #define CAM_B2_MIPICTRL MIPI_CTRL_3
- #define CAM_B1_RIGHT_ADDR 0
- #define CAM_B2_LEFT_ADDR 1
- #define CAM_A_ADDR 0
- #define MV0182_MV0201_SENSOR_RST_GPIO MV0182_PIN_CAM_A_GPIO0_N
- #define MV0182_MV0200_SENSOR_LEFT_RST_GPIO MV0182_PIN_COM_IO5_N
- #define MV0182_MV0200_SENSOR_RIGHT_RST_GPIO MV0182_PIN_CAM_B_GPIO0_N
- #define CAMERA_VSYNC_GPIO 0xFF
- #define CAMERA_HSYNC_GPIO 0xFF
- #define CAMERA_VSYNC_GPIO_MODE 0xFF
- #define CAMERA_HSYNC_GPIO_MODE 0xFF

Enumerations

- enum tyMv0182PcbRevision { MV0182_REV_NOT_INIT = 0, MV0182_R0R1 = 1, MV0182_R2 = 2, MV0182_R3 = 3, MV0182_R4 = 4, MV0182_R5 = 5 }
- enum tyBrdLedId { BRD_LED1 =1, BRD_LED2 =2 }
- enum tyLedState { LED_ON, LED_OFF }

5.11.1 Detailed Description

Definitions and types needed by the MV0182 Board Driver API.

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This header contains all necessary hardware defined constants for this board e.g. GPIO assignments, I2C addresses

5.11.2 Macro Definition Documentation

#define CAM_A1_MIPICTRL MIPI_CTRL_0

#define CAM_A_ADDR 0

#define CAM_B1_MIPICTRL MIPI_CTRL_2

#define CAM_B1_RIGHT_ADDR 0

#define CAM_B2_LEFT_ADDR 1

#define CAM_B2_MIPICTRL MIPI_CTRL_3

#define CAMERA_HSYNC_GPIO 0xFF

#define CAMERA_HSYNC_GPIO_MODE 0xFF

#define CAMERA_VSYNC_GPIO 0xFF

#define CAMERA_VSYNC_GPIO_MODE 0xFF

#define MV0182_I2C0_ADDR_SIZE_DEFAULT (ADDR_7BIT)

#define MV0182_I2C0_SCL_PIN (60)

#define MV0182_I2C0_SDA_PIN (61)

#define MV0182_I2C0_SPEED_KHZ_DEFAULT (100)

#define MV0182_I2C1_ADDR_SIZE_DEFAULT (ADDR_7BIT)

#define MV0182_I2C1_SCL_PIN (12)

#define MV0182_I2C1_SDA_PIN (13)

#define MV0182_I2C1_SPEED_KHZ_DEFAULT (100)

#define MV0182_I2C2_ADDR_SIZE_DEFAULT (ADDR_7BIT)

#define MV0182_I2C2_SCL_PIN (79)

#define MV0182_I2C2_SDA_PIN (80)

#define MV0182_I2C2_SPEED_KHZ_DEFAULT (100)

#define MV0182_MV0200_SENSOR_LEFT_RST_GPIO **MV0182_PIN_COM_IO5_N**

#define MV0182_MV0200_SENSOR_RIGHT_RST_GPIO **MV0182_PIN_CAM_B_GPIO0_N**

#define MV0182_MV0201_SENSOR_RST_GPIO **MV0182_PIN_CAM_A_GPIO0_N**

#define MV0182_OSC_IN_FREQ_KHZ 12000

#define MV0182_PIN_AP_IRQ (22)

#define MV0182_PIN_CAM_A_GPIO0_N (59)

#define MV0182_PIN_CAM_B_GPIO0_N (15)

#define MV0182_PIN_COM_IO5_N (56)

#define MV0182_REV_DETECT (9)

#define MV0182_WM8325_I2C_ADDR_7BIT (0x36)

5.11.3 Enumeration Type Documentation

enum **tyBrdLedId**

Enumerator

BRD_LED1

BRD_LED2

enum **tyLedState**

Enumerator

LED_ON

LED_OFF

enum **tyMv0182PcbRevision**

Enumerator

MV0182_REV_NOT_INIT

MV0182_R0R1

MV0182_R2

MV0182_R3

MV0182_R4

MV0182_R5

5.12 include/brdMv0198.h File Reference

API for the MV0198 Power Monitor Board Driver.

```
#include "brdMv0198Defines.h"
#include "DrvMcp3424Defines.h"
```

Functions

- int Brd198Init (tyBrd198Handle *brdHandle, I2CM_Device *i2cDev, tyAdcChannelConfig *optChannelConfigOverride)
- int Brd198GetRailValueOneShot (tyBrd198Handle *brdHandle, tyChannelId chan, float *railValue)
- int Brd198ConfigureContinuousMode (tyBrd198Handle *brdHandle, tyAdcContinuousConfig *continuousCfg)
- int Brd198SampleRailContinuousMode (tyBrd198Handle *brdHandle, tyAdcContinuousResult *contResult)

- int Brd198AdjustRailConfig (tyBrd198Handle *brdHandle, tyChannelId chan, tyMcp3424Config *channelConfig)
- int Brd198LookupRailDescription (tyBrd198Handle *brdHandle, tyChannelId chan, char *channelName, tyChannelType *railType)
- int Brd198SampleAllRails (tyBrd198Handle *brdHandle, tyAdcResultAllRails *result)
- void Brd198GetDdrPowerAndCurrent (tyBrd198Handle *brdHandle, tyAdcResultAllRails *samples, float *power, float *current)

5.12.1 Detailed Description

API for the MV0198 Power Monitor Board Driver.

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Allows the user to query the current on any Myriad power rail when used with MV0182

5.12.2 Function Documentation

int Brd198AdjustRailConfig (**tyBrd198Handle** * brdHandle, **tyChannelId** chan, tyMcp3424Config * channelConfig)

Adjust the SampleRate, Gain and Mode of a specific ADC channel

See tyChannelId for the list of supported channels This function takes a pointer to a channelConfig structure which will be used to update the config This function applies to both the OneShot and Continuous Mechanisms however care must be taken to correctly configure the mode paramter accordingly. Note: the channel number within this config will be overwritten with the correct channel number

Parameters

in	*pointer*	to the preinitialised handle for this MV0198 of type tyBrd198Handle
in	*ID*	of Channel to be read
in	*pointer*	to MCP channel config structure which is used to modify the configuration

Returns

> 0 on Success

int Brd198ConfigureContinuousMode (**tyBrd198Handle** * brdHandle, **tyAdcContinuousConfig** * continuousCfg)

Configure the MV0198 board in continuous capture mode

Continuous capture mode is an alternative to OneShot mode In this mode up to 4 of ADCs on the platform can be configured to continously capture data. This data can then be polled using the Brd198SampleRailContinuousMode API call This function takes a pointer to an tyAdcContinuousConfig structure which will allows the caller to specify which rail to select on each of the 4 ADCs (A,B,C,D). Optionally the user can also specify that a specific rail is NOT_USED

Parameters

in	*Pointer*	to the preinitialised handle for this MV0198 of type tyBrd198Handle
out	*Pointer*	to tyAdcContinuousConfig structure describing which channels to monitor

Returns

0 on Success

void Brd198GetDdrPowerAndCurrent (**tyBrd198Handle** * brdHandle, **tyAdcResultAllRails** * samples, float * power, float * current)

Extract the power and current values only for DDR from a set of samples already taken

Parameters

in	*pointer*	to the preinitialised handle for this MV0198 of type tyBrd198Handle
in	*pointer*	to a tyAdcResultAllRails structure where the rail values will be found
out	*pointer*	to the variable where the power value will be returned
out	*pointer*	to the variable where the current value will be returned

Returns

no return

int Brd198GetRailValueOneShot (**tyBrd198Handle** * brdHandle, **tyChannelId** chan, float * railValue)

Retrieve the value of current (or voltage) for a specific Channel

See tyChannelId for the list of supported channels Most channels return a current in mA, but there are two channels that return a rail voltage (VDDCV_V_MV, MIPI_VDD_V_MV) The function returns a value in either mV or mA depending on the rail e.g. VDDCV_I_MA returns the measured current for the VDDCV rail in mA VDDCV_V_MV returns the measured voltage for the VDDCV rail in mV

Note

This is a blocking function which typically takes 4ms to complete. See ContinuousMode API for an alternative non-blocking mechanism

Parameters

in	*pointer*	to the preinitialised handle for this MV0198 of type tyBrd198Handle
in	*ID*	of Channel to be read
out	*pointer*	to storage for result of the measurement

Returns

0 on Success

int Brd198Init (**tyBrd198Handle** * brdHandle, I2CM_Device * i2cDev, **tyAdcChannelConfig** * optChannelConfigOverride)

Initialise the MV0198 Power Measurement Board

Passed a handle for a preconfigured I2C device and an optional override for the ADC configuration Table If the ADC Channel config paramater is NULL, then the default embedded ADC configuration will be used This Init function is a necessary prerequisite for all the other functions in this API This API has both blocking and non-blocking methods to query the system power Specifically the Brd198GetRailValue-OneShot() call is a blocking function which both initiates a new measurement and doesn't return until the result is available By default the OneShot mode will take approx 4mS to complete and as such isn't suituable when there are any real-time constraints. The alternative is the ContinuousMode Api which allows the user to poll for new valid data. This API has two methods Brd198ConfigureContinuousMode to start the measurement and Brd198SampleRailContinuousMode to check for updated results. Once in continuous mode, the user should not attempt OneShot measurements.

Parameters

out	*pointer*	to storage for a handle for this MV0198 of type tyBrd198Handle
in	*pointer*	to a preinitialised I2C device that is connected to the MV0198
in	*pointer*	to optional override for the default ADC config table, (OR NULL to use boad defaults)

Returns

0 on Success

int Brd198LookupRailDescription (**tyBrd198Handle** * brdHandle, **tyChannelId** chan, char * channelName, **tyChannelType** * railType)

Return string containing name of channel and Channel type

This is an optional helper function which allows the user to query the name and type (CURRENT_ME-ASUREMENT or VOLTAGE_MEASUREMENT) based on the the channel ID. The returned string is padded with Spaces to provide alignment

Note

This function can only be used when no channel override has been provided to Brd198Init

Parameters

in	*pointer*	to the preinitialised handle for this MV0198 of type tyBrd198Handle
in	*ID*	of Channel to be queried
out	*pointer*	to a string (type tyChannelName) which can be used to store the name of the channel
out	*pointer*	to storage for the type of the measurement (current or voltage)

Returns

0 on Success

int Brd198SampleAllRails (**tyBrd198Handle** * brdHandle, **tyAdcResultAllRails** * result)

Read all rails once and compute the total number of mA and mW over all rails

Parameters

in	*pointer*	to the preinitialised handle for this MV0198 of type tyBrd198Handle
out	*pointer*	to a tyAdcResultAllRails structure where the rail values will be found

Returns

0 on Success

int Brd198SampleRailContinuousMode (**tyBrd198Handle** * brdHandle, **tyAdcContinuousResult** * contResult)

Query the MV0198 platform for any updated sample results when configured in continuous mode

This function can be called one or more times after Brd198ConfigureContinuousMode to check if any ADC has an updated valid sample result It takes a pointer to storage for a tyAdcContinuousResult which will be populated with any new data. Specificaly for each of the 4 ADCS it has two members, one contains a float representing the data value and the other is a boolean flag which indicates that the sample is valid when TRUE. Most channels return a current, but there are two channels that return a rail voltage (VDDCV_V_MV, MIPI_VDD_V_MV) The function returns a value in either mV or mA depending on the rail e.g. VDDCV_I_MA returns the measured current for the VDDCV rail in mA VDDCV_V_MV returns the measured voltage for the VDDCV rail in mV

Parameters

in	*pointer*	to the preinitialised handle for this MV0198 of type tyBrd198Handle
out	*pointer*	to storage for result of the measurement

Returns

0 on Success

5.13 include/brdMv0198Defines.h File Reference

Definitions and types needed by the MV0198 Board Driver API.

```
#include "mv_types.h"
#include "DrvMcp3424.h"
#include "DrvI2cMaster.h"
#include "DrvCommon.h"
```

Data Structures

- struct tyRailLookup
- struct tyAdcResultAllRails
- struct tyAdcContinuousConfig
- struct tyAdcResult
- struct tyAdcContinuousResult
- struct tyAdcChannelConfig
- struct tyBrd198Handle

Macros

- #define MAX_RAIL_STRING_LEN (20)
- #define DEFAULT_NUM_RAILS (16)
- #define MV0198_MCP_DEV_A_7ADDR (0x6E)
- #define MV0198_MCP_DEV_B_7ADDR (0x6D)
- #define MV0198_MCP_DEV_C_7ADDR (0x6A)
- #define MV0198_MCP_DEV_D_7ADDR (0x6B)
- #define VDDCV_I_MUL (1 / 0.6)
- #define VDDCC_I_MUL (1 / 2.0)
- #define VDDIO_B_I_MUL (1 / 20.0)
- #define VDDCR_I_MUL (1 / 20.0)
- #define VDDIO_I_MUL (1 / 10.0)
- #define MIP_VDD_I_MUL (1 / 20.0)
- #define PLL_AVDD_I_MUL (1 / 20.0)
- #define DRAM_MVDDQ_I_MUL (1 / 2.0)
- #define DRAM_MVDDA_I_MUL (1 / 20.0)
- #define DRAM_VDD1_I_MUL (1 / 20.0)
- #define DRAM_VDD2_I_MUL (1 / 10.0)
- #define DRAM_VDDQ_I_MUL (1 / 20.0)
- #define USB_VDD330_I_MUL (1 / 20.0)
- #define USB_VP_VDD_I_MUL (1 / 20.0)
- #define VDDCV_V_MUL (1 / 1.0)
- #define MIPI_VDD_V_MUL (1 / 1.0)
- #define CHANNEL_TO_SIGNAL(chan)

Typedefs

- typedef char tyChannelName [MAX_RAIL_STRING_LEN]

Enumerations

- enum tyChannelId {
  VDDCV_I_MA, VDDCC_I_MA, VDDIO_B_I_MA, VDDCR_I_MA,
  VDDIO_I_MA, MIPI_VDD_I_MA, PLL_AVDD_I_MA, DRAM_MVDDQ_I_MA,
  DRAM_MVDDA_I_MA, DRAM_VDD1_I_MA, DRAM_VDD2_I_MA, DRAM_VDDQ_I_M-
  A,
  USB_VDD330_I_MA, USB_VP_VDD_I_MA, VDDCV_V_MV, MIPI_VDD_V_MV }
- enum tyBrt198ErrorCode {
  DRV_BRD198_DRV_SUCCESS = MYR_DRV_SUCCESS, DRV_BRD198_DRV_ERROR =
  MYR_DRV_ERROR, DRV_BRD198_DRV_NOT_INITIALIZED = MYR_DRV_NOT_INITI-
  ALIZED, DRV_BRD198_DRV_ALREADY_INITIALIZED = MYR_DRV_ALREADY_INITI-
  ALIZED,
  DRV_BRD198_INVALID_RAIL = MYR_DRV_CUSTOM_CODE_START_OFFSET, DRV_-
  BRD198_UNSUPPORTED_ADCCONFG, DRV_BRD198_INVALID_CHAN_CONFIG, DRV-
  _BRD198_INVALID_CONT_MODE_NOT_SELECTED }

- enum tyAdcAChannel {
  ADC_A_NOT_USED = 0, ADC_A_VDDCR_I_MA = 1, ADC_A_VDDCV_I_MA = 2, ADC_-
  A_DRAM_VDD1_I_MA = 3,
  ADC_A_MIPI_VDD_I_MA = 4 }
- enum tyAdcBChannel {
  ADC_B_NOT_USED = 0, ADC_B_DRAM_VDD2_I_MA = 1, ADC_B_DRAM_VDDQ_I_MA
  = 2, ADC_B_DRAM_MVDDQ_I_MA = 3,
  ADC_B_DRAM_MVDDA_I_MA = 4 }
- enum tyAdcCChannel {
  ADC_C_NOT_USED = 0, ADC_C_USB_VDD330_I_MA = 1, ADC_C_USB_VP_VDD_I_MA
  = 2, ADC_C_VDDIO_I_MA = 3,
  ADC_C_VDD_CC_IOB_MA = 4 }
- enum tyAdcDChannel {
  ADC_D_NOT_USED = 0, ADC_D_RESERVED = 1, ADC_D_PLL_AVDD_I_MA = 2, ADC_-
  D_VDDCV_V_MV = 3,
  ADC_D_MIPI_VDD_V_MV = 4 }
- enum tyChannelType { VOLTAGE_MEASUREMENT, CURRENT_MEASUREMENT }

5.13.1 Detailed Description

Definitions and types needed by the MV0198 Board Driver API.

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> : common/license.txt

This header contains all necessary hardware defined constants for this board

5.13.2 Macro Definition Documentation

#define CHANNEL_TO_SIGNAL(chan)

Value:

```
((chan <= VDDCC_I_MA) ? (LOG_EVENT_198_RAIL_BASE + chan) : \
                                ((chan == VDDIO_B_I_MA) ? (
      LOG_EVENT_198_RAIL_VDDIO_B_I_MUL_I_MA_MA2150) : \
                                (LOG_EVENT_198_RAIL_BASE + chan - 1)))
```

#define DEFAULT_NUM_RAILS (16)

#define DRAM_MVDDA_I_MUL (1 / 20.0)

#define DRAM_MVDDQ_I_MUL (1 / 2.0)

#define DRAM_VDD1_I_MUL (1 / 20.0)

#define DRAM_VDD2_I_MUL (1 / 10.0)

#define DRAM_VDDQ_I_MUL (1 / 20.0)

#define MAX_RAIL_STRING_LEN (20)

#define MIP_VDD_I_MUL (1 / 20.0)

#define MIPI_VDD_V_MUL (1 / 1.0)

#define MV0198_MCP_DEV_A_7ADDR (0x6E)

#define MV0198_MCP_DEV_B_7ADDR (0x6D)

#define MV0198_MCP_DEV_C_7ADDR (0x6A)

#define MV0198_MCP_DEV_D_7ADDR (0x6B)

#define PLL_AVDD_I_MUL (1 / 20.0)

#define USB_VDD330_I_MUL (1 / 20.0)

#define USB_VP_VDD_I_MUL (1 / 20.0)

#define VDDCC_I_MUL (1 / 2.0)

#define VDDCR_I_MUL (1 / 20.0)

#define VDDCV_I_MUL (1 / 0.6)

#define VDDCV_V_MUL (1 / 1.0)

#define VDDIO_B_I_MUL (1 / 20.0)

#define VDDIO_I_MUL (1 / 10.0)

5.13.3 Typedef Documentation

typedef char tyChannelName[**MAX_RAIL_STRING_LEN**]

5.13.4 Enumeration Type Documentation

enum **tyAdcAChannel**

Enumerator

ADC_A_NOT_USED
ADC_A_VDDCR_I_MA
ADC_A_VDDCV_I_MA
ADC_A_DRAM_VDD1_I_MA
ADC_A_MIPI_VDD_I_MA

enum **tyAdcBChannel**

Enumerator

ADC_B_NOT_USED

ADC_B_DRAM_VDD2_I_MA

ADC_B_DRAM_VDDQ_I_MA

ADC_B_DRAM_MVDDQ_I_MA

ADC_B_DRAM_MVDDA_I_MA

enum **tyAdcCChannel**

Enumerator

ADC_C_NOT_USED

ADC_C_USB_VDD330_I_MA

ADC_C_USB_VP_VDD_I_MA

ADC_C_VDDIO_I_MA

ADC_C_VDD_CC_IOB_MA

enum **tyAdcDChannel**

Enumerator

ADC_D_NOT_USED

ADC_D_RESERVED

ADC_D_PLL_AVDD_I_MA

ADC_D_VDDCV_V_MV

ADC_D_MIPI_VDD_V_MV

enum **tyBrt198ErrorCode**

Enumerator

DRV_BRD198_DRV_SUCCESS

DRV_BRD198_DRV_ERROR

DRV_BRD198_DRV_NOT_INITIALIZED

DRV_BRD198_DRV_ALREADY_INITIALIZED

DRV_BRD198_INVALID_RAIL

DRV_BRD198_UNSUPPORTED_ADCCONFG

DRV_BRD198_INVALID_CHAN_CONFIG

DRV_BRD198_INVALID_CONT_MODE_NOT_SELECTED

enum tyChannelId

Enumerator

VDDCV_I_MA

VDDCC_I_MA

VDDIO_B_I_MA

VDDCR_I_MA

VDDIO_I_MA

MIPI_VDD_I_MA

PLL_AVDD_I_MA

DRAM_MVDDQ_I_MA

DRAM_MVDDA_I_MA

DRAM_VDD1_I_MA

DRAM_VDD2_I_MA

DRAM_VDDQ_I_MA

USB_VDD330_I_MA

USB_VP_VDD_I_MA

VDDCV_V_MV

MIPI_VDD_V_MV

enum tyChannelType

Enumerator

VOLTAGE_MEASUREMENT

CURRENT_MEASUREMENT

5.14 osDrivers/include/OsBrdMv0182.h File Reference

rtems driver for board mv0182

```
#include <mv_types.h>
#include <rtems.h>
#include <OsBmx055.h>
```

Data Structures

- struct tyOsBoard0182Configuration

Typedefs

- typedef enum tyOsMv0182I2CConfigType tyOsMv0182I2CConfigType

- typedef enum tyOsMv0182CamBBus tyOsMv0182CamBBus
- typedef enum tyOsBoard0182ConfigType tyOsBoard0182ConfigType
- typedef struct tyOsBoard0182Configuration tyOsBoard0182Configuration

Enumerations

- enum tyOsBrd182ErrorCode { DRV_OS_BRD_182_DRV_SUCCESS = RTEMS_SUCCESSFUL, DRV_OS_BRD_182_DRV_ERROR = 0x8000, DRV_OS_BRD_182_I2C_SLAVE_ERROR, DRV_OS_BRD_182_I2C_DRIVER_ERROR, DRV_OS_BRD_182_GPIO_DRIVER_ERROR, DRV_OS_BRD_182_CPR_INIT_ERROR, DRV_OS_BRD_182_CPR_OPEN_ERORR, DRV_OS_BRD_182_INVALID_CONFIG, DRV_OS_BRD_182_ALREADY_INITIALIZED, DRV_OS_BRD_182_ERROR_BRD_HANDLER_NULL }
- enum tyOsMv0182PcbRevision { OS_MV0182_REV_NOT_DETECTED = 0, OS_MV0182_R0R1 = 1, OS_MV0182_R2 = 2, OS_MV0182_R3 = 3, OS_MV0182_R4 = 4, OS_MV0182_REV_NOT_INIT = 5, OS_MV0182_R5 = 6, OS_MV0212 = 7 }
- enum tyOsMv0182I2CConfigType { MV182_I2C_SLAVE = 0, MV182_I2C_MASTER }
- enum tyOsMv0182CamBBus { MV182_I2C0 = 0, MV182_I2C1 }
- enum tyOsBoard0182ConfigType { MV182_END = 0, MV182_I2C0_STATE, MV182_CAM_B_I2C_BUS }

Functions

- tyOsBrd182ErrorCode osBoard0182Initialise (tyOsBoard0182Configuration *config)

5.14.1 Detailed Description

rtems driver for board mv0182

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5.14.2 Typedef Documentation

typedef enum **tyOsBoard0182ConfigType tyOsBoard0182ConfigType**

typedef struct **tyOsBoard0182Configuration tyOsBoard0182Configuration**

typedef enum **tyOsMv0182CamBBus tyOsMv0182CamBBus**

typedef enum **tyOsMv0182I2CConfigType tyOsMv0182I2CConfigType**

5.14.3 Enumeration Type Documentation

enum **tyOsBoard0182ConfigType**

Enumerator

MV182_END

MV182_I2C0_STATE

MV182_CAM_B_I2C_BUS

enum **tyOsBrd182ErrorCode**

Enumerator

DRV_OS_BRD_182_DRV_SUCCESS

DRV_OS_BRD_182_DRV_ERROR

DRV_OS_BRD_182_I2C_SLAVE_ERROR

DRV_OS_BRD_182_I2C_DRIVER_ERROR

DRV_OS_BRD_182_GPIO_DRIVER_ERROR

DRV_OS_BRD_182_CPR_INIT_ERROR

DRV_OS_BRD_182_CPR_OPEN_ERORR

DRV_OS_BRD_182_INVALID_CONFIG

DRV_OS_BRD_182_ALREADY_INITIALIZED

DRV_OS_BRD_182_ERROR_BRD_HANDLER_NULL

enum **tyOsMv0182CamBBus**

Enumerator

MV182_I2C0

MV182_I2C1

enum **tyOsMv0182I2CConfigType**

Enumerator

MV182_I2C_SLAVE

MV182_I2C_MASTER

enum **tyOsMv0182PcbRevision**

Enumerator

OS_MV0182_REV_NOT_DETECTED

OS_MV0182_R0R1

OS_MV0182_R2

OS_MV0182_R3

OS_MV0182_R4

OS_MV0182_REV_NOT_INIT

OS_MV0182_R5

OS_MV0212

5.14.4 Function Documentation

tyOsBrd182ErrorCode osBoard0182Initialise (**tyOsBoard0182Configuration** * config)

This function initialize the basic functions of MV0182 board: I2C busses, external clock generator and sets up all GPIOS and detect board revision

Parameters

`in`	*pointer*	to the preinitialised handle for this MV0182 of type tyOsBoard0182-Configurations.
`out`	*pointer*	to storage the board handler: revision, i2c busses and gpio driver major

5.15 osDrivers/include/OsBrdMv0182Defines.h File Reference

5.16 intro/MDKdox-BrdDrivers-intro.txt File Reference

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