

Femtosatellite_BB_nortos.c File Reference

Source file for femtosatellite. [More...](#)

```
#include <Femtosatellite_BB_nortos.h>
#include <stdlib.h>
#include <stdbool.h>
#include <stdint.h>
#include <unistd.h>
#include <ti/drivers/rf/RF.h>
#include <ti/drivers/PIN.h>
#include <ti/drivers/Power.h>
#include <ti/display/Display.h>
#include <ti/devices/DeviceFamily.h>
#include "Board.h"
#include "smartrf_settings/smartrf_settings.h"
#include "easylink/EasyLink.h"
```

Macros

```
#define PAYLOAD_LENGTH 30
#define CUBESAT_ADDRESS 0xCC
```

Functions

void	ledSetup ()	Setup LED driver. More...
void	displaySetup ()	Setup display driver. More...
void	commandRx ()	Receive command(s) from CubeSat. More...
void	ackTx ()	Send acknowledgement to CubeSat. More...
void	dummyCommand (uint8_t commandID, uint8_t rxPacket [30], uint8_t sleepTime)	Perform dummyCommand. More...
void	displayQuat (uint8_t rxPacket [30])	Recombine RX packet elements to obtain desired quaternion. More...
void *	mainThread (void *arg0)	

Variables

static PIN_Handle	pinHandle
static PIN_State	pinState
static Display_Handle	display
EasyLink_Params	easyLinkParams

EasyLink_Status	result
uint32_t	absTime
static bool	bBlockTransmit = false
EasyLink_RxPacket	rxPacket = {{0}, 0, 0, 0, 0, {0}}
EasyLink_TxPacket	txPacket = {{0}, 0, 0, {0}}
PIN_Config	pinTable []

Detailed Description

Source file for femtosatellite.

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Date

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Macro Definition Documentation

◆ CUBESAT_ADDRESS

```
#define CUBESAT_ADDRESS 0xCC
```

CubeSat address for address filtering

◆ PAYLOAD_LENGTH

```
#define PAYLOAD_LENGTH 30
```

Length of payload in bytes

Function Documentation

◆ ackTx()

```
void ackTx ( )
```

Send acknowledgement to CubeSat.

Returns

none

◆ commandRx()

```
void commandRx ( )
```

Receive command(s) from CubeSat.

Returns

none

◆ displayQuat()

```
void displayQuat ( uint8_t rxPacket[30] )
```

Recombine RX packet elements to obtain desired quaternion.

Parameters

quatRx Quaternion bytes

Returns

none

◆ displaySetup()

```
void displaySetup ( )
```

Setup display driver.

Returns

none

◆ dummyCommand()

```
void dummyCommand ( uint8_t commandID,  
                    uint8_t rxPacket[30],  
                    uint8_t sleepTime  
                    )
```

Perform dummyCommand.

Parameters

commandID Specific command to be performed.

Returns

none

◆ ledSetup()

```
void ledSetup ( )
```

Setup LED driver.

Returns

none

Variable Documentation

◆ absTime

uint32_t absTime

RF core uses this to time RF commands

◆ bBlockTransmit

bool bBlockTransmit = false

static

Flag used to block transmission

◆ display

Display_Handle display

static

Handle for driver display

◆ easyLinkParams

EasyLink_Params easyLinkParams

Variable used to initialise EasyLink parameters

◆ pinHandle

PIN_Handle pinHandle

static

Handle for pin driver

◆ pinState

PIN_State pinState

static

Pin state variable for GPIO operations

◆ pinTable

PIN_Config pinTable[]

Initial value:

```
= {  
    Board_PIN_LED1 | PIN_GPIO_OUTPUT_EN | PIN_GPIO_LOW | PIN_PUSHPULL | PIN_DRVSTR_MAX,  
    Board_PIN_LED2 | PIN_GPIO_OUTPUT_EN | PIN_GPIO_LOW | PIN_PUSHPULL | PIN_DRVSTR_MAX,  
    PIN_TERMINATE  
}
```

◆ result

EasyLink_Status result

Status of each RF command

◆ rxPacket

EasyLink_RxPacket rxPacket = {{0}, 0, 0, 0, 0, {0}}

RX packet

◆ txPacket

EasyLink_TxPacket txPacket = {{0}, 0, 0, {0}}

TX packet