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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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