

systemc-uart

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## Chapter 1

# Main Page

### 1.0.1 The GreenSocs SystemC Generic UART components.

This includes simple Generic UART models. The components are "Loosely timed" only.



## Chapter 2

# Hierarchical Index

### 2.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

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sc_core::sc_module	
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## Chapter 3

# Class Index

### 3.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

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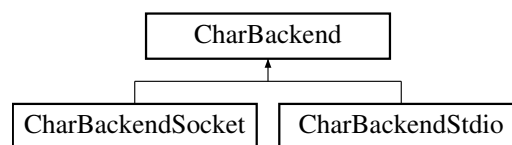


## Chapter 4

# Class Documentation

### 4.1 CharBackend Class Reference

Inheritance diagram for CharBackend:



#### Public Member Functions

- virtual void **write** (unsigned char c)=0
- void **register\_receive** (void \*opaque, void(\*receive)(void \*opaque, const uint8\_t \*buf, int size), int(\*can\_receive)(void \*opaque))

#### Static Public Member Functions

- static int **can\_receive** (void \*opaque)

#### Protected Attributes

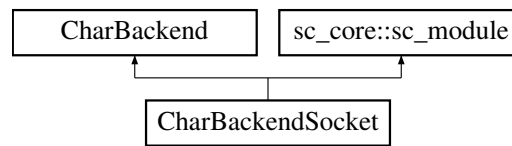
- void \* **m\_opaque**
- void(\* **m\_receive** )(void \*opaque, const uint8\_t \*buf, int size)
- int(\* **m\_can\_receive** )(void \*opaque)

The documentation for this class was generated from the following file:

- /Users/mark/work/workspace/systemc-uarts/include/greensocs/systemc-uarts/backends/char-backend.h

## 4.2 CharBackendSocket Class Reference

Inheritance diagram for CharBackendSocket:



### Public Member Functions

- **SC\_HAS\_PROCESS** ([CharBackendSocket](#))
- void **start\_of\_simulation** ()
- **CharBackendSocket** (sc\_core::sc\_module\_name name, std::string type, std::string address, bool server=true, bool nowait=true)
- void \* **rcv\_thread** ()
- void **rcv** (void)
- void **write** (unsigned char c)
- void **setup\_tcp\_server** (std::string ip, std::string port)
- void **setup\_tcp\_client** (std::string ip, std::string port)

### Public Attributes

- std::string **type**
- std::string **address**
- bool **m\_server**
- int **m\_srv\_socket**
- bool **m\_nowait**
- int **m\_socket** = -1
- uint8\_t **m\_buf** [256]

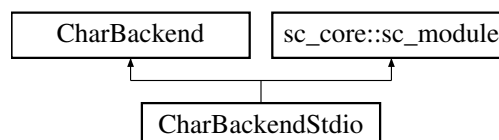
### Additional Inherited Members

The documentation for this class was generated from the following file:

- /Users/mark/work/workspace/systemc-uarts/include/greensocs/systemc-uarts/backends/char/socket.h

## 4.3 CharBackendStdio Class Reference

Inheritance diagram for CharBackendStdio:



## Public Member Functions

- **SC\_HAS\_PROCESS** ([CharBackendStdio](#))
- **CharBackendStdio** (sc\_core::sc\_module\_name name)
- void \* **rcv\_thread** ()
- void **rcv** (void)
- void **write** (unsigned char c)

## Static Public Member Functions

- static void **catch\_function** (int signo)
- static void **tty\_reset** ()

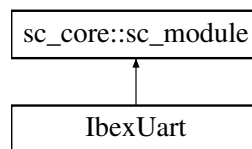
## Additional Inherited Members

The documentation for this class was generated from the following file:

- /Users/mark/work/workspace/systemc-uarts/include/greensocs/systemc-uarts/backends/char/stdio.h

## 4.4 IbexUart Class Reference

Inheritance diagram for IbexUart:



## Public Types

- enum **Reg** {  
**REG\_ITSTAT** = 0x00 , **REG\_ITEN** = 0x04 , **REG\_ITTEST** = 0x08 , **REG\_CTRL** = 0x0c ,  
**REG\_STATUS** = 0x10 , **REG\_RDATA** = 0x14 , **REG\_WDATA** = 0x18 }
- enum {  
**FIELD\_IT\_RXWATERMARK** = 0x2 , **FIELD\_CTRL\_TXENABLE** = 0x1 , **FIELD\_CTRL\_RXENABLE** = 0x2 ,  
**FIELD\_STATUS\_TXEMPTY** = 0x04 ,  
**FIELD\_STATUS\_RXIDLE** = 0x10 , **FIELD\_STATUS\_RXEMPTY** = 0x20 }

## Public Member Functions

- void **update\_irqs** (void)
- void **recv** (const uint8\_t \*buf, int size)
- **SC\_HAS\_PROCESS** ([IbexUart](#))
- **IbexUart** (sc\_core::sc\_module\_name name)
- void **set\_backend** ([CharBackend](#) \*backend)
- void **b\_transport** (tlm::tlm\_generic\_payload &trans, sc\_core::sc\_time &delay)
- uint64\_t **reg\_read** (uint64\_t addr)
- void **reg\_write** (uint64\_t addr, uint32\_t data)
- void **before\_end\_of\_elaboration** ()

## Static Public Member Functions

- static int **can\_receive** (void \*opaque)
- static void **receive** (void \*opaque, const uint8\_t \*buf, int size)

## Public Attributes

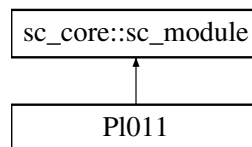
- sc\_core::sc\_out< bool > **irq\_rxwatermark**
- uint32\_t **it\_state**
- uint32\_t **it\_enable**
- uint32\_t **ctrl**
- uint32\_t **status**
- uint8\_t **rdata**
- [CharBackend](#) \* **chr**
- tlm\_utils::simple\_target\_socket< [IbexUart](#) > **socket**
- sc\_core::sc\_event **update\_event**

The documentation for this class was generated from the following file:

- /Users/mark/work/workspace/systemc-uarts/include/greensocs/systemc-uarts/uart-ibex.h

## 4.5 PI011 Class Reference

Inheritance diagram for PI011:



## Public Member Functions

- **SC\_HAS\_PROCESS** ([PI011](#))
- **PI011** (sc\_core::sc\_module\_name name)
- void **set\_backend** ([CharBackend](#) \*backend)
- void **write** (uint64\_t offset, uint64\_t value)
- void **b\_transport** (tlm::tlm\_generic\_payload &trans, sc\_core::sc\_time &delay)
- void **pl011\_update** ()
- void **pl011\_update\_sysc** ()
- uint64\_t **pl011\_read** (uint64\_t offset)
- void **pl011\_set\_read\_trigger** ()
- void **pl011\_write** (uint64\_t offset, uint64\_t value)
- void **pl011\_put\_fifo** (uint32\_t value)

## Static Public Member Functions

- static int **pl011\_can\_receive** (void \*opaque)
- static void **pl011\_receive** (void \*opaque, const uint8\_t \*buf, int size)

## Public Attributes

- [PL011State](#) \* **s**
- [CharBackend](#) \* **chr**
- [tlm\\_utils::simple\\_target\\_socket](#)< [PL011](#) > **socket**
- [sc\\_core::sc\\_vector](#)< [sc\\_core::sc\\_signal](#)< bool, [sc\\_core::SC\\_MANY\\_WRITERS](#) > > **irq**
- [sc\\_core::sc\\_event](#) **update\_event**

The documentation for this class was generated from the following file:

- /Users/mark/work/workspace/systemc-uarts/include/greensocs/systemc-uarts/uart-pl011.h

## 4.6 PL011State Struct Reference

### Public Attributes

- [uint32\\_t](#) **readbuff**
- [uint32\\_t](#) **flags**
- [uint32\\_t](#) **lcr**
- [uint32\\_t](#) **rsr**
- [uint32\\_t](#) **cr**
- [uint32\\_t](#) **dmacr**
- [uint32\\_t](#) **int\_enabled**
- [uint32\\_t](#) **int\_level**
- [uint32\\_t](#) **read\_fifo** [16]
- [uint32\\_t](#) **ilpr**
- [uint32\\_t](#) **ibrd**
- [uint32\\_t](#) **fbrd**
- [uint32\\_t](#) **ifl**
- [int](#) **read\_pos**
- [int](#) **read\_count**
- [int](#) **read\_trigger**
- [const unsigned char](#) \* **id**

The documentation for this struct was generated from the following file:

- /Users/mark/work/workspace/systemc-uarts/include/greensocs/systemc-uarts/uart-pl011.h





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