

GCP

0.1

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Chapter 1

Data Structure Index

1.1 Data Structures

Here are the data structures with brief descriptions:

GCPConn	5
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Chapter 2

File Index

2.1 File List

Here is a list of all documented files with brief descriptions:

crc16.h	??
gcp.c	7
gcp.h	12

Chapter 3

Data Structure Documentation

3.1 GCPConn Struct Reference

Data Fields

- `uint8_t * recv_buf`
Receive buffer.
- `uint8_t * send_buf`
Send buffer.
- `uint16_t recv_size`
Receive buffer size.
- `uint16_t send_size`
Send buffer size.
- `uint16_t data_size`
Size of the data in the receive buffer.
- `uint16_t bytes_rcvd`
Number of payload bytes received.
- `uint16_t bytes_sent`
Number of payload bytes sent.
- `uint16_t recv_crc`
The crc checksum of the received data.
- `uint16_t send_crc`
The crc checksum of the data being sent.
- `GCPFrameState recv_state`
The receive state.
- `GCPFrameState send_state`
The send state.
- `unsigned recv_lock: 1`
When true, indicates that the receive buffer is being written to and should not be read from.

- unsigned [send_lock](#): 1

When true, indicates that the receive buffer is being read from and should not be written to.

3.1.1 Field Documentation

3.1.1.1 `uint16_t GCPConn::send_size`

Send buffer size.

Note

This is the size of the data in the send buffer, not the size of the buffer itself.

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

- [gcp.h](#)

Chapter 4

File Documentation

4.1 gcp.c File Reference

```
#include <config.h> #include "gcp.h" #include "crc16.h"
```

Defines

- #define **POLY** 0x8005
The polynomial to be used for the CRC calculation.
- #define **PRE** 0
The prepend value to be used for the CRC calculation.

Functions

- static void **recv_preamble1** (GCPConn *c, uint8_t b)
Reads the first byte of the preamble.
- static void **recv_preamble2** (GCPConn *c, uint8_t b)
Reads the second byte of the preamble.
- static void **recv_size1** (GCPConn *c, uint8_t b)
Reads the first byte of the data size.
- static void **recv_size2** (GCPConn *c, uint8_t b)
Reads the second byte of the data size.
- static void **recv_payload** (GCPConn *c, uint8_t b)
Reads the payload data.
- static void **recv_crc1** (GCPConn *c, uint8_t b)
Reads the first byte of the checksum.
- static void **recv_crc2** (GCPConn *c, uint8_t b)
Reads the second byte of the checksum.
- static uint8_t **send_preamble1** (GCPConn *c)

Returns the first byte of the preamble to be sent.

- static uint8_t [send_preamble2](#) (GCPConn *c)

Returns the second byte of the preamble to be sent.

- static uint8_t [send_size1](#) (GCPConn *c)

Returns the first byte of the payload size to be sent.

- static uint8_t [send_size2](#) (GCPConn *c)

Returns the second byte of the payload size to be sent.

- static uint8_t [send_payload](#) (GCPConn *c)

Returns the next byte of the payload to be sent.

- static uint8_t [send_crc1](#) (GCPConn *c)

Returns the first byte of the checksum to be sent.

- static uint8_t [send_crc2](#) (GCPConn *c)

Returns the second byte of the checksum to be sent.

- int [gcp_init](#) (GCPConn *c)

Initializes a GCPConn object.

- int [gcp_rcv_byte](#) (GCPConn *c, uint8_t b)

Processes a byte from the stream.

- uint8_t [gcp_send_byte](#) (GCPConn *c)

Calculates the next byte to be sent to the stream.

4.1.1 Detailed Description

4.1.2 Function Documentation

4.1.2.1 int [gcp_init](#) (GCPConn * c)

Initializes a [GCPConn](#) object.

Parameters

<i>A</i>	pointer to the object to be initialized.
----------	--

Returns

0 on success; a non-zero value on failure.

4.1.2.2 int [gcp_rcv_byte](#) (GCPConn * c, uint8_t b)

Processes a byte from the stream.

Parameters

<i>c</i>	A pointer to the connection.
<i>b</i>	The byte from the stream to be processed.

Returns

0 on success; a non-zero value on failure.

4.1.2.3 uint8_t gcp_send_byte (GCPCConn * c)

Calculates the next byte to be sent to the stream.

Parameters

<i>c</i>	A pointer to the connection.
----------	------------------------------

Returns

The next byte (or 0 on failure).

4.1.2.4 void recv_crc1 (GCPCConn * c, uint8_t b) [static]

Reads the first byte of the checksum.

Parameters

<i>c</i>	A pointer to the GCPCConn object.
<i>b</i>	The byte being read.

4.1.2.5 void recv_crc2 (GCPCConn * c, uint8_t b) [static]

Reads the second byte of the checksum.

Parameters

<i>c</i>	A pointer to the GCPCConn object.
<i>b</i>	The byte being read.

4.1.2.6 void recv_payload (GCPCConn * c, uint8_t b) [static]

Reads the payload data.

Parameters

<i>c</i>	A pointer to the GCPCConn object.
<i>b</i>	The byte being read.

4.1.2.7 void recv_preamble1 (GCPCConn * *c*, uint8_t *b*) [static]

Reads the first byte of the preamble.

Parameters

<i>c</i>	A pointer to the GCPCConn object.
<i>b</i>	The byte being read.

4.1.2.8 void recv_preamble2 (GCPCConn * *c*, uint8_t *b*) [static]

Reads the second byte of the preamble.

Parameters

<i>c</i>	A pointer to the GCPCConn object.
<i>b</i>	The byte being read.

4.1.2.9 void recv_size1 (GCPCConn * *c*, uint8_t *b*) [static]

Reads the first byte of the data size.

Parameters

<i>c</i>	A pointer to the GCPCConn object.
<i>b</i>	The byte being read.

4.1.2.10 void recv_size2 (GCPCConn * *c*, uint8_t *b*) [static]

Reads the second byte of the data size.

Parameters

<i>c</i>	A pointer to the GCPCConn object.
<i>b</i>	The byte being read.

4.1.2.11 uint8_t send_crc1 (GCPCConn * *c*) [static]

Returns the first byte of the checksum to be sent.

Parameters

<i>c</i>	A pointer to the GCPCConn object.
----------	---

Returns

The first byte of the checksum.

4.1.2.12 `uint8_t send_crc2 (GCPConn * c) [static]`

Returns the second byte of the checksum to be sent.

Parameters

<code>c</code>	A pointer to the GCPConn object.
----------------	--

Returns

The second byte of the checksum.

4.1.2.13 `uint8_t send_payload (GCPConn * c) [static]`

Returns the next byte of the payload to be sent.

Parameters

<code>c</code>	A pointer to the GCPConn object.
----------------	--

Returns

The next byte of the payload.

4.1.2.14 `uint8_t send_preamble1 (GCPConn * c) [static]`

Returns the first byte of the preamble to be sent.

Parameters

<code>c</code>	A pointer to the GCPConn object.
----------------	--

Returns

The first byte of the preamble.

4.1.2.15 `uint8_t send_preamble2 (GCPConn * c) [static]`

Returns the second byte of the preamble to be sent.

Parameters

<code>c</code>	A pointer to the GCPCConn object.
----------------	---

Returns

The second byte of the preamble.

4.1.2.16 `uint8_t send_size1 (GCPCConn * c)` `[static]`

Returns the first byte of the payload size to be sent.

Parameters

<code>c</code>	A pointer to the GCPCConn object.
----------------	---

Returns

The first byte of the payload size.

4.1.2.17 `uint8_t send_size2 (GCPCConn * c)` `[static]`

Returns the second byte of the payload size to be sent.

Parameters

<code>c</code>	A pointer to the GCPCConn object.
----------------	---

Returns

The second byte of the payload size.

4.2 gcp.h File Reference

```
#include <stdint.h>
```

Data Structures

- struct [GCPCConn](#)

Enumerations

- enum [GCPFrameState](#) { [gcp_preamble1](#), [gcp_preamble2](#), [gcp_size1](#), [gcp_size2](#), [gcp_payload](#), [gcp_crc1](#), [gcp_crc2](#) }
Communication state.

Functions

- int [gcp_init](#) ([GCPConn](#) *c)
Initializes a [GCPConn](#) object.
- int [gcp_rcv_byte](#) ([GCPConn](#) *c, uint8_t b)
Processes a byte from the stream.
- uint8_t [gcp_send_byte](#) ([GCPConn](#) *c)
Calculates the next byte to be sent to the stream.

4.2.1 Detailed Description

4.2.2 Enumeration Type Documentation

4.2.2.1 enum GCPFrameState

Communication state.

Enumerator:

- [gcp_preamble1](#)*** Reading first byte of the preamble.
- [gcp_preamble2](#)*** Reading second byte of the preamble.
- [gcp_size1](#)*** Reading first byte of the payload size.
- [gcp_size2](#)*** Reading second byte of the payload size.
- [gcp_payload](#)*** Reading payload data.
- [gcp_crc1](#)*** Reading first byte of the checksum.
- [gcp_crc2](#)*** Reading second byte of the checksum.

4.2.3 Function Documentation

4.2.3.1 int [gcp_init](#) ([GCPConn](#) * c)

Initializes a [GCPConn](#) object.

Parameters

<i>A</i>	pointer to the object to be initialized.
-----------------	--

Returns

0 on success; a non-zero value on failure.

4.2.3.2 int [gcp_rcv_byte](#) ([GCPConn](#) * c, uint8_t b)

Processes a byte from the stream.

Parameters

<i>c</i>	A pointer to the connection.
<i>b</i>	The byte from the stream to be processed.

Returns

0 on success; a non-zero value on failure.

4.2.3.3 uint8_t gcp_send_byte (GCPCConn * c)

Calculates the next byte to be sent to the stream.

Parameters

<i>c</i>	A pointer to the connection.
----------	------------------------------

Returns

The next byte (or 0 on failure).