GCDC16 Communication Bus

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October 22, 2015

Contents

Version	0.1	First draft
	0.2	Added App bus

1 Introduction

This document specifies the busses that connect to the communication subsystem in the Simulink model. 4 bytes correspond to a Java integer, and 8 bytes to a Java long.

For incoming messages, data elements not present in the message will correspond to a NaN value on the bus.

2 Sensor Fusion Bus

This bus contains all data related to the sensor fusion subsystem. There will be two identical buses, one from the sensor fusion system to the communication, and one in the other direction.

Data:	Bytes:	Notes:
Station ID	4	Unique station ID, given by organisers
GenerationDeltaTime	4	See D3.2
StationType	4	= 5
Latitude	4	See D3.2
Longitude	4	See D3.2
SemiMajorConfidence	4	See D3.2
SemiMinorConfidence	4	See D3.2
SemiMajorOrientation	4	See D3.2
Altitude	4	Not in D3.2?
Heading	4	See D3.2
HeadingConfidence	4	See D3.2
Speed	4	See D3.2
SpeedConfidence	4	See D3.2
VehicleLength	4	See D3.2
VehicleWidth	4	See D3.2
LongAcceleration	4	See D3.2
LongAccelerationConfidence	4	See D3.2
YawRate	4	See D3.2
YawRateConfidence	4	See D3.2
VehicleRole	4	= 0
ReferenceTime	8	See D3.2
RearAxleLocation	4	See D3.2
ResponseTimeConstant	4	See D3.2, use "unavailable" value
ResponseTimeDelay	4	See D3.2, use "unavailable" value

3 Application Bus

There are two busses connecting the communication system to the application running the current scenario:

- Application Data Bus
- Application Control Bus

The application data bus contains all data needed for communication. The application control bus is used to instruct the communication system to create a specific message.

In order to send a specific message, the following steps must be performed:

1. Make sure all required data for the message is present on the application data bus.

2. Set the correct value on the application control bus for the desired message.

Data:	Scenario:	Bytes:	Notes:
DetectionTime		8	See D3.2
CauseCode		4	See D3.2
SubCauseCode		4	See D3.2
Controller type		4	See D3.2
Target longitudinal acceleration		4	See D3.2
Time headway		4	See D3.2
Cruise speed		4	See D3.2
(opt) Participants ready		4	See D3.2
(opt) Start platoon		4	See D3.2
(opt) End-of-scenario		4	See D3.2
Mio ID		4	See D3.2
Mio Range		4	See D3.2
Mio Bearing		4	See D3.2
Mio Range rate		4	See D3.2
Lane		4	See D3.2
Forward ID		4	See D3.2
Backward ID		4	See D3.2
Merge request		4	See D3.2
Safe-to-merge		4	See D3.2
Flag		4	See D3.2
Flag tail		4	See D3.2
Flag head		4	See D3.2
Platoon ID		4	See D3.2
Distance travelled in CZ		4	See D3.2
Intention		4	See D3.2
Counter		4	See D3.2