OA-II VEH Payload Bus Specifications

ES00007

Rev: A01

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Contents

1 Introduction

1.1 Scope

The document is describe the detail structure of OA-II VEH Payload Bus.

1.2 Purpose

The purpose of this document construct a standard for all the OA-II VEH component to transfer data via the OA-II VEH Payload Bus.

1.3 Relevant Documents

1.4 Revision History

Rev	Author	Approver	Changes	Date
A01	Jinzhi Cai		Initial draft	2019-8-15

Table 1: Summary of Revision History

2 Relative Technology Introduction

2.1 CANbus

2.2 SpaceWire

3 Bus Structure

3.1 Software Structure

The bus is from by two kind of device. **Router** is device that will have multiple OA-II VEH Payload Bus port allow other device to connect with it. It do not process any packet but will route packet to target destination. **Node** is device that will send out and receive data from other **Node** or **Router**. A node usually will contain one set of OA-II VEH Payload Bus port for it to connect to other device.

All device in the OA-II VEH Payload Bus will only connect to one other device, know as point to point (P2P). **Router** will have the responsibility to relay packet base on priority. Each device will given a 16bit fix ID when it was made. Every time when a node want to deliverer a packet to another node, it will put the id into the message with the packet. The router will prioritize those packet base on their id and put it to the target node.

3.2 Port Definition

The OA-II VEH Payload Bus contain following lane.

- 24V Main Power Lane $\times 2$
- CANbus Lane $\times 2$
- Dual-SpaceWire Lane $\times 2$

The two CANbus lane and two Dual-SpaceWire lane are mutual backup between the same bus. Between different lane, a signal ground will be placed for absorb spurious emission.

3.3 Packet Definition

In OA-II VEH Payload Bus, the packet format is following.

- 16bit sender ID
- 16bit Target ID
- Data
- CRC Code