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Picture this - APE-FC-2 and ARINC818

ARINC818 at a Glance - by Joachim Schuler and Marco Maier

The ARINC818 Specification defines a digital video link that is used for uncompressed video data transmission.

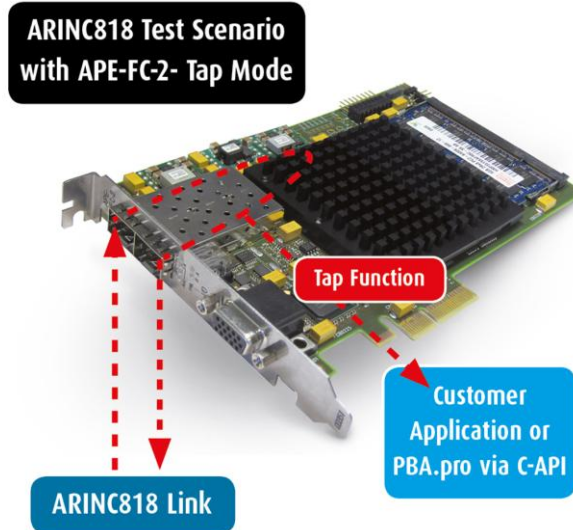
This Specification enables Avionics Display manufacturers to choose the video format that best suits their Application. Video formats can differ in their Frame Rates, resolution, pixel density, and interlacing techniques which drive the required data rates. Different classes of video transmission are defined, which vary from simple asynchronous to pixel synchronous video transmission which require corresponding display capabilities. On ARINC818 the large contiguous video frame data are mapped onto a Fibre Channel connection. Each picture equates to one ADVB (Avionics Digital Video Bus) Container, which is transmitted within one Fibre Channel Sequence. For example, a XGA resolution video has a picture size of 1024x768 pixel, which means one line has 1024pixel, and the picture has 768lines. Each pixel needs three bytes for colour information, so one line has an overall size of 3072bytes. This exceeds the maximum payload size of a single FC frame, hence it is split into two frames with each 1536bytes, carrying half a line each. The complete picture data will be sent within 1536 FC frames, called the Object2, with an additional ADVB header frame, called the Object0.





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For example a single picture can be sent periodically with a S/W configurable refresh rate or simply acyclic (e.g. on application request). Same is also applicable for picture sequences which can be sent in a single shot or repetitive mode. In all modes it is possible to change or reload picture **data during operation 'on-the-fly' while the board maintains** picture data integrity and the configured refresh rates on the ARINC818 link accordingly. Import of picture data e.g. in Windows BMP/ DIB format for transmission is also supported by the API which also does the translation into the corresponding ARINC818 Object0/ Object2 format, required for transmission over FC. Application notification provisions, like call backs, are also offered to provide maximum on flexibility for customer applications.

Different modes on receiver side of the APE-FC-2 API offer great flexibility for analysing incoming ARINC data on Upper Layer Protocol (ULP) level as well as on Layer 2 level.

