SpaceWire Link Analyser Mk3 vs Mk2

The Link Analyser Mk3 supersedes the original Link Analyser and the Mk2. Both the hardware and software have been significantly improved.

Hardware

SpaceWire Link Analyser Mk3

The hardware now supports SpaceWire link speeds up to 400 Mbit/s (previously 200 Mbit/s); the on-board memory to which SpaceWire traffic is captured has been increased in size to 512 MB (previously 128 MB); and a USB 3.0 interface (previously USB 2.0) is now used to connect the unit to a host PC. Compared to the Link Analyser Mk2, these improvements mean much larger quantities of traffic can be captured, on SpaceWire links operating at faster link speeds, and can be uploaded to a host PC more quickly.
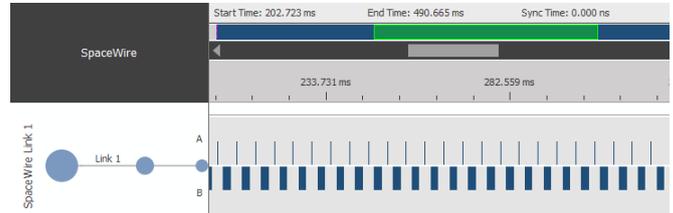
Hardware Improvements

	Link Analyser Mk2	Link Analyser Mk3
Maximum Speed (Mbit/s)	200	400
Capture Memory (MB)	128	512
Host PC Interface	USB 2.0	USB 3.0

Software

The Link Analyser Mk3 software is also significantly improved compared to the Mk2. It has been completely rewritten, retaining familiar views and useful functionality from the Mk2, whilst removing limitations of the previous software and adding new features.

The new Link Analyser Mk3 software application keeps familiar status counter, bit-stream, character and packet views but these can now display the entire contents of the capture memory. This means up to 67 million events can be captured and viewed using the Mk3 software application, compared to the limited 1 million that could be viewed in the Mk2 application. If 67 million events are not required, the capture memory size is also now configurable, adjusting the upload time and host PC memory resource usage accordingly.

For greater SpaceWire traffic capture visibility, a new network view has been added. This provides a high-level overview of all the captured SpaceWire traffic, displaying more or less detail depending on the zoom level. This is selection synchronised with the character and packet views, and greatly helps traffic navigation.

SpaceWire Network View

To further assist with SpaceWire traffic navigation, like the Link Analyser Mk2 software application, the Mk3 supports character and packet view search. The Mk3 packet view search has been extended with the ability to locate RMAP packets with specific RMAP fields.

Unlike the Link Analyser Mk2 application, the Mk3 software is no longer written in Java. This means performance has been significantly improved and there is no requirement to install the Java Runtime Environment (JRE) on the host PC, minimising the software installation process and avoiding possible JRE/Operating System compatibility issues.

Both the SpaceWire Link Analyser Mk2 and Mk3 are provided with a C API. The API provided with the Link Analyser Mk3 is simply an extension to the Mk2 API, with Mk3 device support added and memory usage improvements made. This means any custom code previously written using the Link Analyser Mk2 API can easily be updated to support the Mk3 with minimal changes.

Finally, the Link Analyser Mk3 software now uses our device and operating system agnostic software stack, named STAR-System, removing a dependency on our long replaced old USB driver. This improves performance and assures support long into the future.

Software Improvements

	Link Analyser Mk2	Link Analyser Mk3
SpaceWire Events Visible in Application	1 million	67 million
Traffic Views	Status counter, bit-stream, character and packet	Status counter, bit-stream, character, packet and network
RMAP Packet Field Search	No	Yes
Java Dependency	Yes	No
C API	Yes	Yes (extended)
Driver	Legacy driver	STAR-System

The SpaceWire Link Analyser Mk3 is superior to the Mk2. Choosing the Link Analyser Mk3 over the Mk2 is recommended for all new projects. The Link Analyser Mk2 should only be selected if it is necessary to maintain compatibility with existing systems.

For more information please contact **enquiries@star-dundee.com**.