DATA SHEET

KS6300A PathWave Waveform Analytics

PATHWAVE

Industry 4.0 Ready Solution for IC Validation

What is PathWave Waveform Analytics?

PathWave Waveform Analytics is Keysight's Advanced Analytics software that acquire and analyze the big vector data or long-duration waveforms with high resolution playback. The unique technology combines pre and post processing Machine Learning models that significantly improves productivity on anomaly discovery such as voltage and current spikes and transient trends on signal waveforms gathered from oscilloscopes.

Today's World

The automotive, IoT and mobile devices markets are growing rapidly and need to leverage design thinking and innovative technology enablers to empower design engineers to faster develop products that are robust, reliable, secure against malicious intrusions and low in power consumption.

Capturing, transferring, comparing and managing large and long duration waveform data is time-consuming and costly. Analyzing these waveforms during design validation and characterization remains an extremely manual task for the design labs to perform.

KEYSIGHT TECHNOLOGIES

Eyeballing or PathWave Waveform Analytics

During validation and characterization process, the R&D labs are storing huge sets of continuous long duration waveforms from their multiple runs of their tests for monitoring or details analytics. The total sizes of the waveform data from all their multiple runs, for just one IC validation, is huge (in the 100's of gigabit range), incurring huge cost of storage space and maintenance. Manual and tedious human eyeballing is needed to perform multi-correlation of multi-channel waveforms to discover anomalies such as spikes and time lags. This process is prone to escapees.

Keysight has developed a new data compression technology innovation that enables long-duration waveform compression, high resolution playback and analysis exceeding several terabytes of data. Machine learning built into the innovation significantly improves productivity on anomaly discovery of voltage and current spikes and transient trends captured by the waveforms. This helps customer in accelerating time-to-market by significantly reducing the anomaly detection to rectify issues faster.

Features

1. Reduce costs by storing the data with a high compression ratio for much reduced storage size.
2. Perform advanced analytics on big vector data or waveforms in pseudo real-time.
3. Use Machine Learning algorithm to perform clustering of similar waveform patterns over multiple test runs for anomaly analysis.
4. Provides high level view to help user identify outlier waveform shapes, by looking at the clustering results. *(Refer Figure 1)*
5. Hierarchical clustering allows for multi-level drill down to analyze the data in higher and higher resolution.

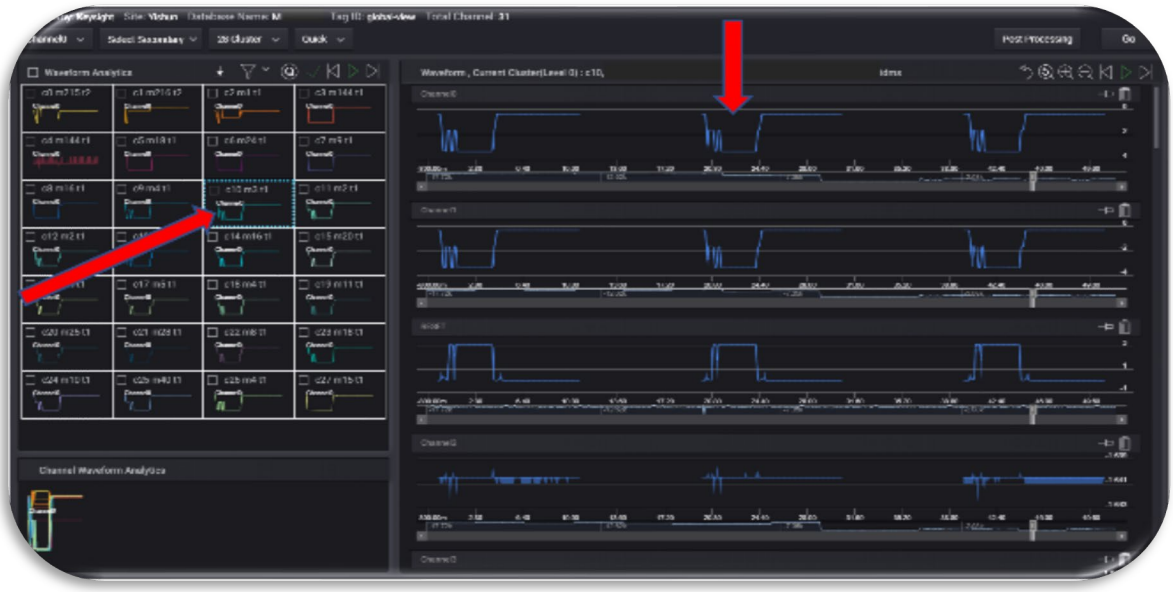


Figure 1

6. Query and analyze any portion of the big vector data or waveform that was captured and store.

7. Minimum data is transferred between the Edge computer and the server. Faster response and better data security. *(Refer Figure 2)*

Figure 2

8. Allows viewing on unlimited number of channels on single dashboard with options to pin or move the waveform in the interested channel for comparison.

9. Capable to have single to multiple channels clustering, allowing user to perform not only limited to one but multiple dimensional comparison. *(Refer Figure 3)*

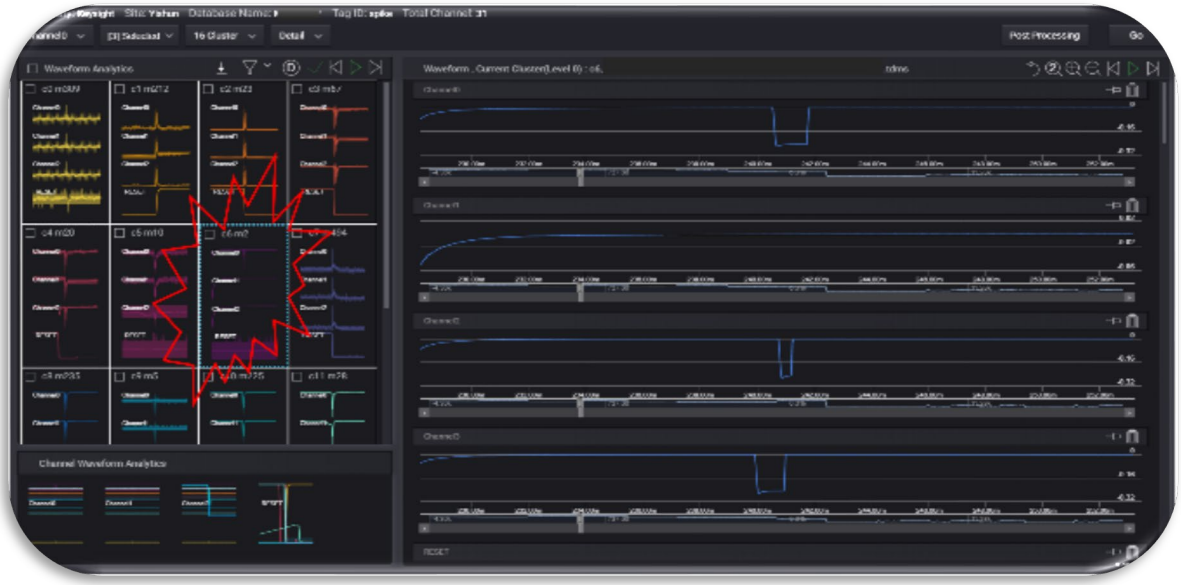


Figure 3

10. Drill down clustering from Quick mode to Detail mode, which enable user to identify quickly and decide if to pursue on a low or high number of members within each cluster.

11. User could create or load exclusive profile during post processing and able to have it edited or removed if required. This helps in time reduction during data analysis. *(Refer Figure 4)*

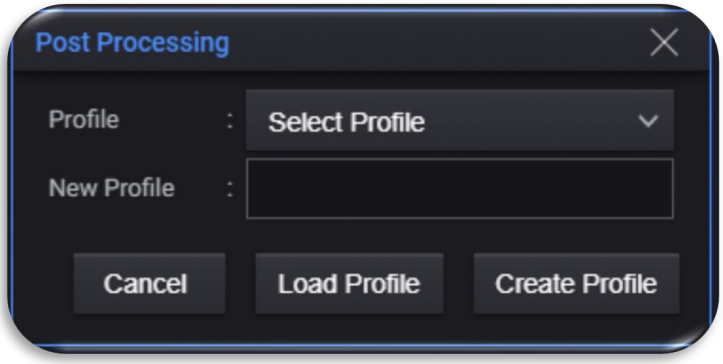


Figure 4

12. Customized conditions could be included or excluded during post processing, where it enables user to adjust and fine-tune the waveforms for analysis. *(Refer Figure 5)*

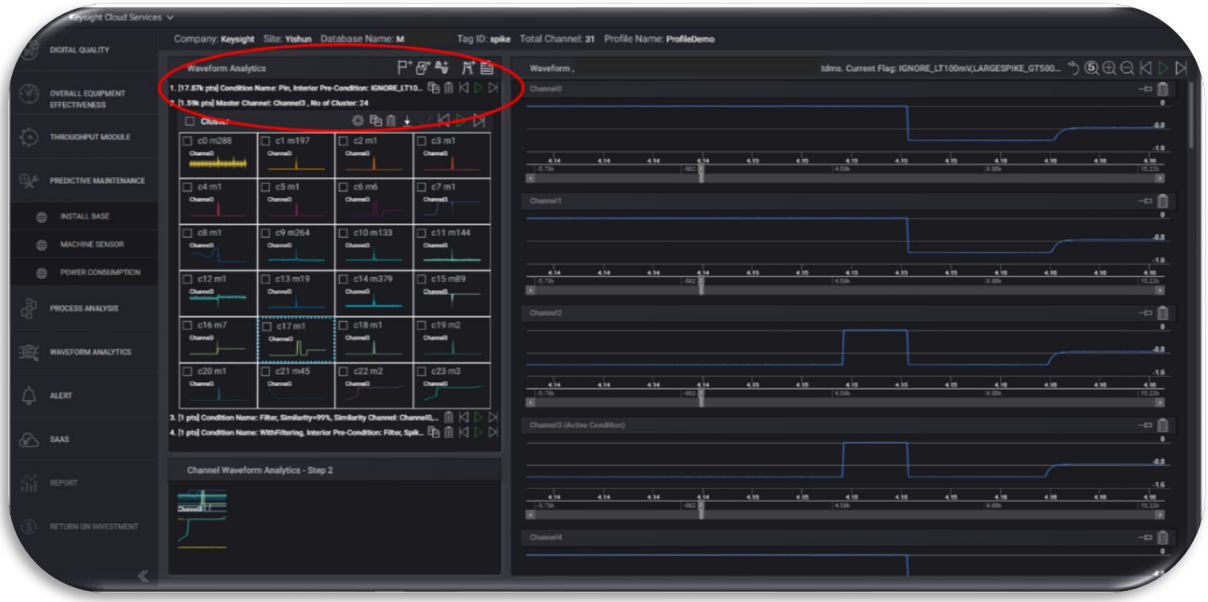


Figure 5

Unique Technology

Up to 60% of Raw Data Compression

Reduce the waveforms data size up to 60% which help customers to reduce their storage size as well as storage cost.

High Resolution Playback in Compressed State

Although there is a high ratio of data compression, waveform visualization and advanced analytics performed with high resolution playback.

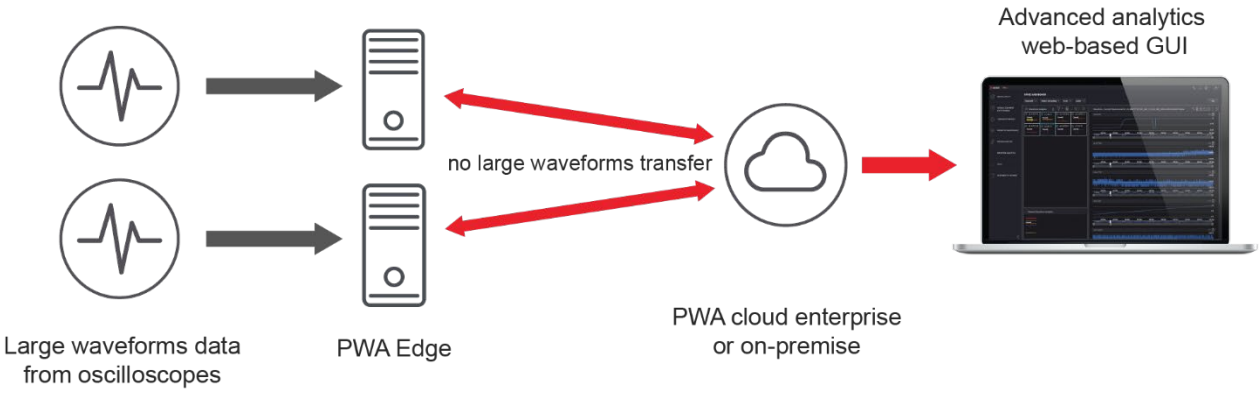
0% Need to Transfer Long Large Waveforms

Data compression, processing and analysis executed at the R&D lab and do not require transferring of gigabytes or terabytes of data for viewing by the user.

90% Better Anomaly Detection with Patented Machine Learning Models

Patented Machine Learning Models enables 90% better detection of anomalies which were previously unnoticed through the manual process.

PathWave Waveform Analytics Enables Data Sharing Across Instruments



Conclusion

PathWave Waveform Analytics' unique patented algorithms enable R&D and design validation engineers to detect anomalies in multiple runs of validation tests over multiple channels of an IC, so that they can easily detect functional inconsistencies quickly to rectify them quickly, thus shortening the time-to-market of these devices.

Web Resources

For more information go to: www.keysight.com/find/pwa

Learn more at: www.keysight.com

For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at: www.keysight.com/find/contactus

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