EVA100
Analog/Mixed IC Test Solution

SEMICON Europe 2017
Stefan Döllinger

October 2016
EVA100 – Target Devices

- Scalable Solution from R&D to Production
- Small footprint and low power consumption
- High performance and reliability
- Intuitive usage by Graphical User Interfaces
Analog / Mixed-Signal ICs

Target Applications
Low pin count (40 pins/DUT)

- Low pin count, high mixed devices
- Power and battery management
- Voltage references
- Power switching, RMS/DC converters
- Data converters
- Audio (amplifiers and codecs)
- Amplifiers and Comparators
- Analog switches, multiplexers, filters
- Logic, sensors
EVA100 – From R&D to Production

“E-Model” for Engineering

“P-Model” for Production

ACDC Box  Standard Testing Unit  Laptop PC/Desktop

EWS

Docking Fixture for Testing Unit x2

AC-CONT

Standard Testing Unit x2

Models are Hardware and Software compatible

→ Shorten Time to Market
## EVA100 – Measurement Instruments

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Module Name</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EMS</td>
<td>Event Master Sequencer: Synchronization / BUS interface module (including External Equipment control)</td>
</tr>
<tr>
<td>Control Module (FPGA)</td>
<td>GCM</td>
<td>General Control Module: 8ch (I2C, SPI, JTAG and User Protocols) 64ch (Relay control)</td>
</tr>
<tr>
<td>DC Voltage Current Generators</td>
<td>AVI</td>
<td>Analog VI Source: 6ch (+/-64V, +/-500mA)</td>
</tr>
<tr>
<td></td>
<td>MVI</td>
<td>Middle Power VI Source: 2ch (+/-128V, +/-2A)</td>
</tr>
<tr>
<td>Pattern Generator</td>
<td>DM</td>
<td>Digital Module: 32ch (100MHz include 8ch Low Jitter (1ps RMS typ.), 1ch (500fs RMS))</td>
</tr>
<tr>
<td>Arbitrary Wave Generator &amp; Digitizer</td>
<td>LF</td>
<td>Low Frequency AWG/DGT: 4ch AWG (200ksps/24bit, 80kHz BW) 4ch DGT (625ksps/24bit, 200kHz BW)</td>
</tr>
<tr>
<td></td>
<td>HF</td>
<td>High Frequency AWG/DGT: 2ch AWG(512Msps/16bit, 200MHz BW) 2ch DGT (250Msps/16bit, 200MHz BW)</td>
</tr>
<tr>
<td>Oscilloscope</td>
<td>SCAP</td>
<td>Signal Capture Module: 4ch (2Gsps;Max), 500MHz BW (Pogo) / 300MHz BW(BNC)</td>
</tr>
</tbody>
</table>
EVA100 – High Performance

- **Linearity (Source)**

  - Stability 18 hours (Measure)

  ![Graph showing linearity and stability measurements for EVA100 and other SMUs.]

- **High Accurate Measurement**

  - AVI (IsPin)
  - ISVM (1mA/0.8mA)
  - AVI (MVM1)
  - AVI (MVM2)

  ![Diagram illustrating high accurate measurement setup.]

  - V Measure (2VRange)

  - Peak-Peak 9.1uVpp

- **Other SMU Linearity**

- **EVA100 (AVI) Linearity**

- **EVA100 (AVI) Stability**

- **Other SMU Stability**
EVA100 – Panel GUILs

- Intuitive usage
- Resource operation like a standard instrument stand alone
- Set up resources and execute measurement
- For manual debug and sequence development
EVA100 – Test Development

- Test definition by Sequence Editor GUI, no programming skills required
- Select resources and define events and dependencies on the time axis
- Java interface to integrate user functions
- Support of loops and conditional branch, copy & paste
- Ease debug by supporting breakpoints and stepping
EVA100 – More Software Features

- Enhanced Flow Editor
- Limit Editor
- Pattern Editor and Logic Analyzer
- Interactive Mode
- Automatic Report Generator
- Simplified Operator GUIs

Pattern Editor and Logic Analyzer

Automatic Report Generator
EVA100 – “Audio Codec” Example

Setup Overview

Target Device

- MVI
- LF
- GC
- DM

Target Characteristics

- Amplifier DC Characteristics
- Amplifier AC Characteristics
- Charge pump
- Oscillator
- Digital Interface(SCL/SDA/ADDR)
- I2C AC Timing
- Register Control

- Test report (AC characteristics)

- Graphical Setup (Digital I/F)

ReportGenerator
EVA100 – The Innovative Test Solution

- Scalable
- Small
- High performance
- Intuitive

Come and visit us at both 753 for a live demonstration!
Thank you!