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# CodeViser

## JTAG Emulator for Smart Debugging

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# CodeViser [JTAG Emulator]

## The Latest and the Most Advanced JTAG Emulator for Embedded System

### The Key Advantages

| The Latest RTOS Debugging Support!! (Android, Linux, Windows Mobile, and WinCE, etc.) | Multi-Core Debugging Feature Free Support!! | The Latest Cortex Series Support!! (Cortex-R/M/A/A5x 32/64bit) | Advanced AP(App. Processor) based on ARM & CDMA/ WCDMA/ GSM Device Support !! | Simulator, Hypervisor, big.LITTLE, LPAE, ARM v8 Support!! | Various Script File Support (.csf/ .cmm) | Prompt Trouble Shooting Service with Remote Control System !! |
|---|---|---|---|---|---|---|

### Specification

- Supporting Cores
  : ARM7/9/11/Cortex-R/M/A ARM v7/v8 64bit, XScale, Faraday, Andes, SRP(Samsung DSP), QDSP(Qualcomm DSP) , TriCore TC2xx
- The Latest CDMA/WCDMA/GSM Device Support
  : Qualcomm(MSM/QSD/QSC), TI(OMAP), MTK, VIA, etc.
- Interface : High Speed USB 2.0
- Downloading Speed : ~1.5MB/sec
- JTAG Clock : 1KHz ~ 50MHz
- Target Voltage : 1.8v ~ 5v
- Target Connection : 20/14 Pin Connector
- Power : USB or DC5V/2A (SMPS)
- Update : Firmware Update by CVD
- Size : 7.5 x 12.5 x 1.7cm
– Serial Wire Debugging

### Development Environment

HOST PC (CVD) — Development Board

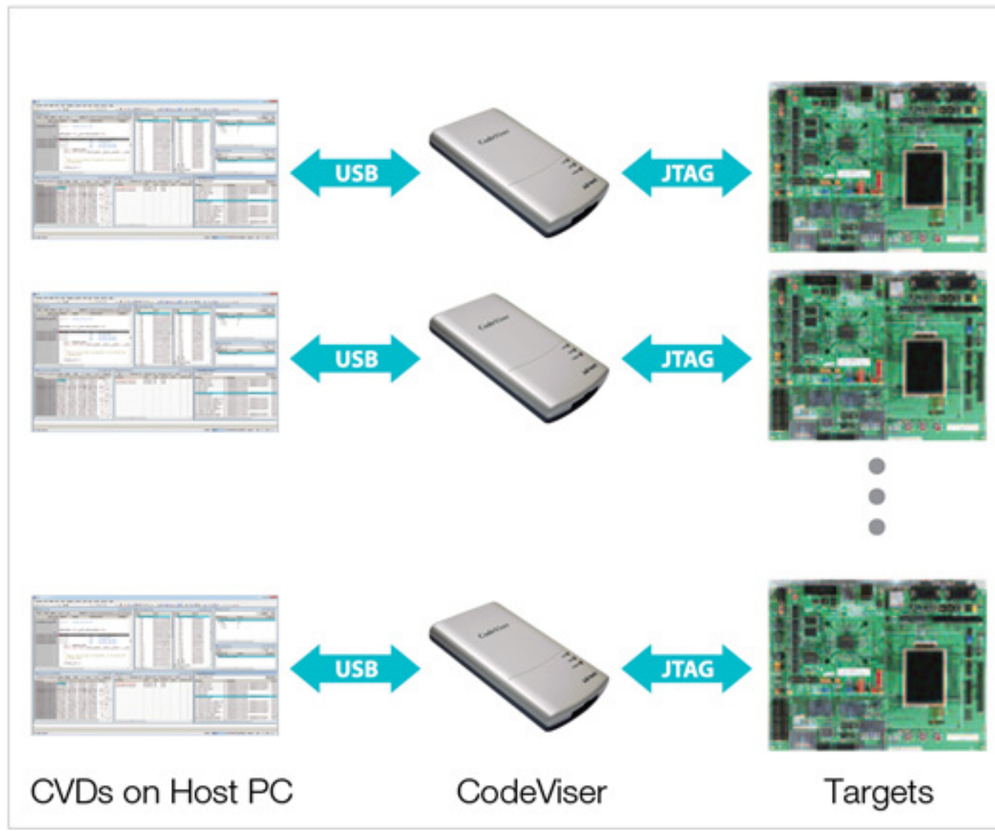
1. The USB 2.0 interface cable is used between computer and CodeViser
2. CodeViser is connected to target system with JTAG cable & probe board.
   1) In case of JTAG probe, CodeViser can be used with three types of JTAG probes. (14pin for ARM7 core, 20pin for ARM7/9/11/Cortex/Other cores, 14pin for TI chipset)
   2) CodeViser can support JTAG 1 pin's voltage (3.3v/2.5v/1.8v) instead of target system. If the voltage from target is not stable, user canchange the voltage level within CVD debugger manually.

### High-Speed Flash Downloading

#### Flash Programming

CVD(CodeViser Debugger) — CodeViser — Target

#### Multi Flash Programming




CVDs on Host PC — CodeViser — Targets

The number of CodeViser for multi-programming can be changed according to customer's demand.

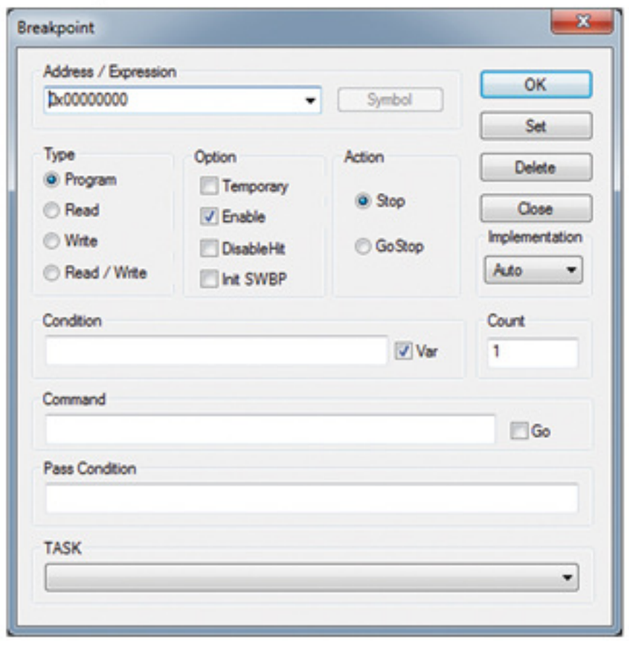
**Flash Device Support List**

| Flash Device | Flash Name |
|---|---|
| NOR | Am29F004BB, Am41DL3248GT, AT49LV080T, INTEL_28F800C3T, INTEL_48F2000P0ZT, MBM29LV160T, M28W160CT, STM32F101 ,THPV057062_1, TH50VSF2580, MT28F642D20, MX28F160C3, SHARP_LRS1828, etc. |
| NAND | K9F5608x0D, K9F2G08U0M, H27L/H27S/H27UCG8TMYR, TC58DVM92A1FT00, TC58NVG0S3AFT00, NAND04G-4B, etc. |
| ONENAND | KFG1216U2M, etc. |
| MOVINAND | Samsung MoviNAND, etc. |
| INAND | Sandisk iNAND, etc. |
| Internal Flash | Each Chipset's Internal Flash Programming Support |

# CVD [CodeViser Debugger]

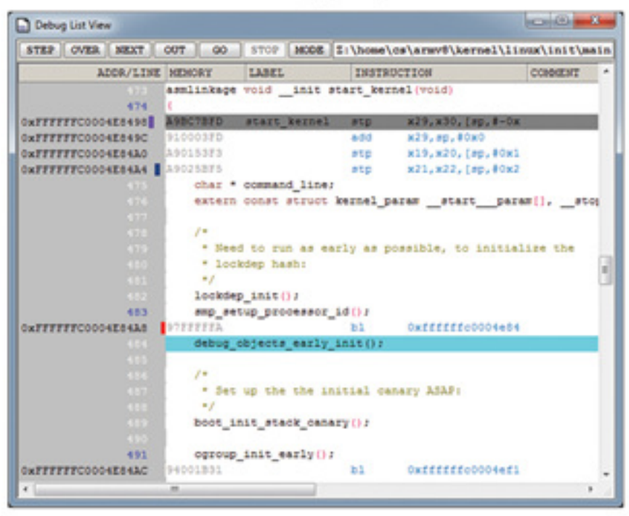
## CVD enables developers to enhance their development quality and speed.

### Breakpoint




H/W, S/W, Auto Breakpoint Support with Advanced Condition

### Source-Level Debugging




C/C++, etc (High Level Language) and Assembly Code (Low Level Language) Source Level Debugging Support

### Convenient Built-In Editor

- Syntax Coloring
- A Variety of Font, Style, Find and Replace

### Various View Windows

- Memory, Register, Local/Global Variable
- Watch, Breakpoint, Call Stack
- Project, Symbol List, Elapsed Time
- Workspace (Files, Functions, Variable Tree)

### Easy CR Setting Window

- Convenient Register Setting for Each EV Board & Chipset Support

### Flash Programming

- Fast Flash Writing
- Device/Script File for Each Flash

### Powerful Debugging Function

- HW/SW/Auto/Stop/GoStop/Condition Breakpoint
- disassembling/Semihosting/DCC
- Multi-Core Debugging
- CMM Files Compatibility
- OS Debugging(Kernel/Library/App./Module)
- Various Image(ELF, AXF, COFF, Dwarf1/2/3/4, EXE etc)

### CVD API Support

- User Software Support to Use CodeViser HW through CVD API Function

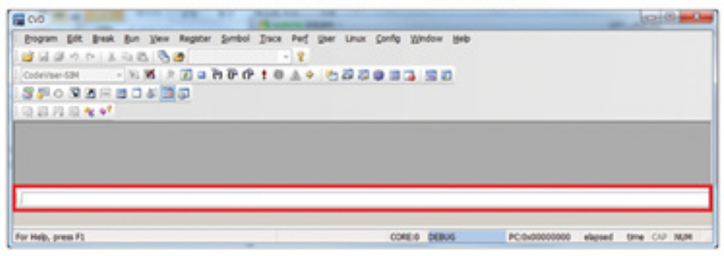
### RTOS Awareness

- Android, Linux, Window Mobile, WinCE, ECOS, Rex, Nucleus, ThreadX, AMX, L4, uC/OS II, etc.

### Performance Analysis

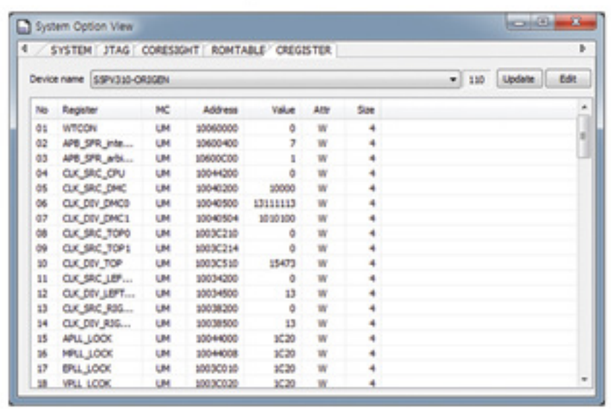
- Function, File, Symbol, etc Profiling Analysis

### Command Line UI Blank



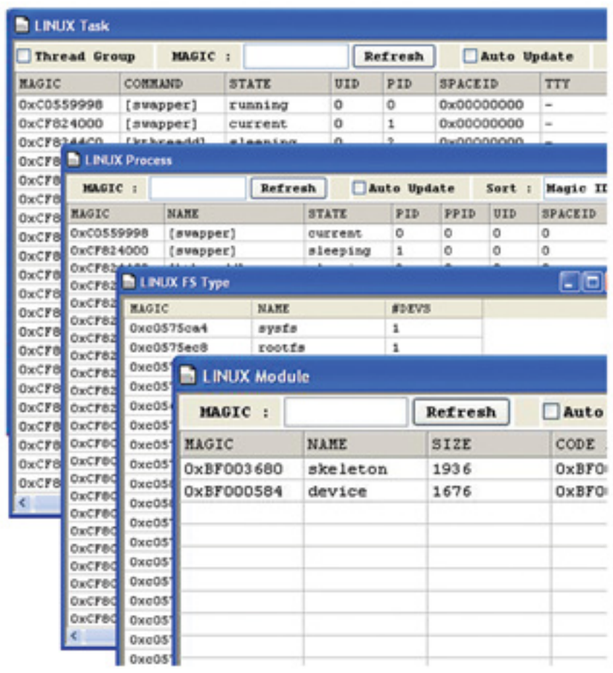
User can enter CSF/CMM script command in command line UI blank.

### Powerful CR Option



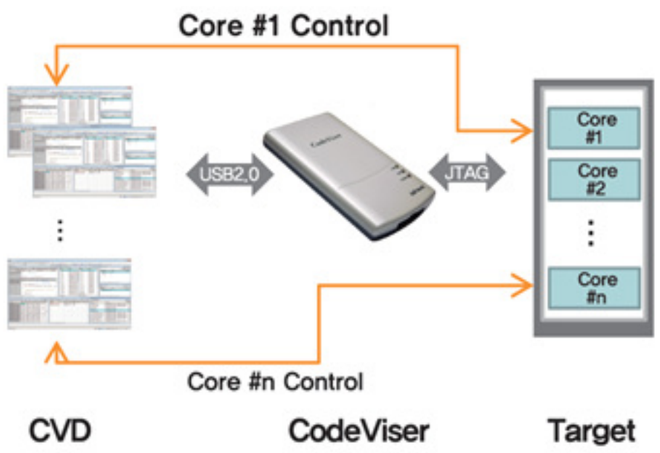

User can initialize target system by using powerful CR option that supports device list & script file.

### RTOS Debugging




User can debug OS awareness regarding U-Boot(eboot)/ Kernel / Application / Module / Library / (Multi) Thread, etc information.

## Multi-Core Debugging




### Supported Multi-Core Chipset List

- Samsung Exynos 4xxx(Cortex-A9 SMP) / 5xxx(Cortex-A15 SMP)/7xxx(ARM v8)
- Qualcomm MSM6/7/8xxx/QSD8xxx
- Mediatek MT6xxx/MT8xxx(ARM v8)
- NVIDIA Tegra2/3/4(Cortex-A9/A15)
- TI OMAP3/4/5xxx(Cortex-A)
- AP20, T20(Cortex-A9MPCore, ARM7TDMI)
- Any Multi-core chipset based on ARM v7 32bit /v8 64bit support

In case of the latest WCDMA/GSM chipset, more than two cores are used for high performance communication and application module in one chipset. For multi-core debugging, all cores should be connected to one JTAG chain. CVD provides multicore/ multi-processor debugging function to give detailed debugging information related to each core by using one CodeViser H/W emulator.

※ The additional license cost is not asked for multi-core debugging on CVD.

# CCS CodeViser Controller Simulator

The CCS and CANIOAnalyzer applies to all areas of automotive or industrial which uses CAN, one of serial network communication methods. These HW and SW products are developed to monitor and control I/O signals by using CAN database info.

## CCS Spec

### Digital I/O Control
- Channel : 25
- Voltage Range : 0 ~ B+V

### Analog Signal Control
- Channel : 10
- Voltage Range : 0.00 ~ 5.00V
- Resolution : 0.01V

### PWM Control
- Channel : Input 5 , Output 5
- Digital shared I/O and pin
- Configuration : Individual setting

### CAN Control
- Channel : 2
- Speed : High(500kps)/Low(100kps)
- Send Message Type : Event Trigger/Cycle

### LIN Control
- Channel : 1
- Speed : 1Kbps~20Kbps
- Send Message Type : Master/Slave support

### Power Control
- Channel : Input 1 (External Power Supply),
  Output 4 (B+, ACC, IGN1, IGN2)
- Voltage : 12V (Range : TBD); Current : Max 2A
- Output On/Off Switch : 4 (Individuals)
- Power Consumption : Individual
- Voltage/Current Measurement (TBD)

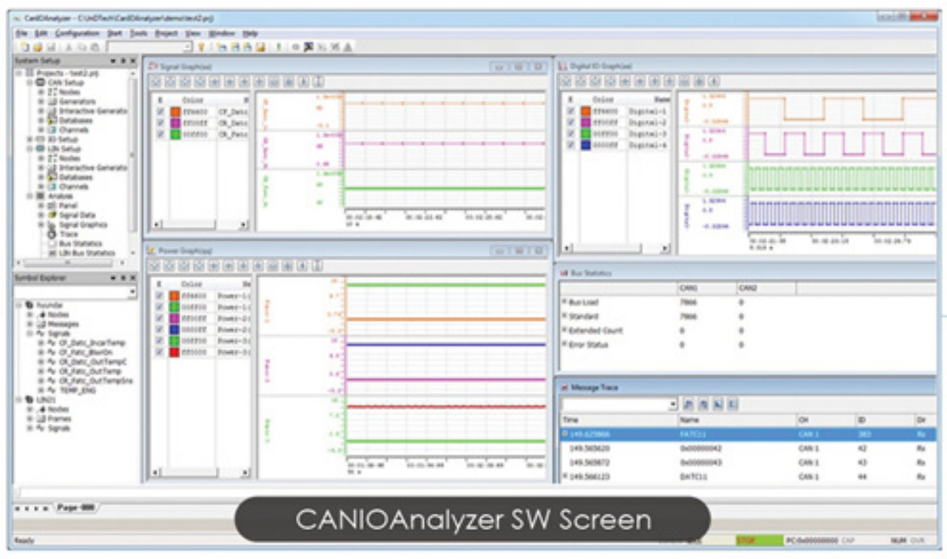
### Script Language
- Script type command to control debugger SW.
  Ex) Wait, Loop, Condition command for Flow control and Variable, Function call command etc

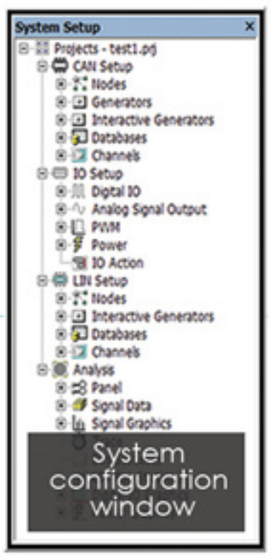
### Project Management & UI
- Save/Modify/Load setup configuration options per project
- Each setup UI by I/O, PWM, CAN
- screen configuration UI for Monitoring
- Graphic chart to monitor trend of the status change

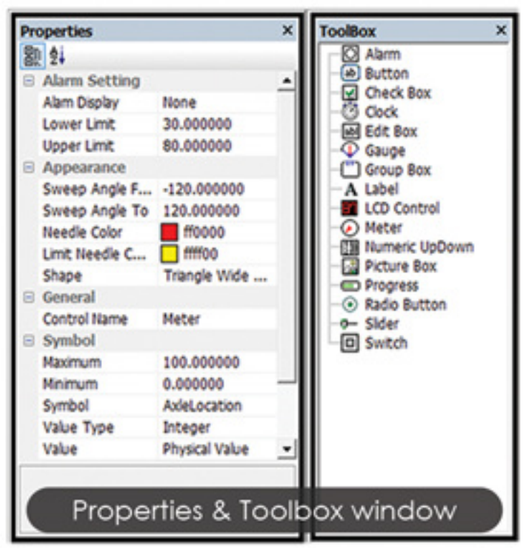
### Debugger interlocking
Core support : Cortex-M
ECU Memory Read/Write
Debugger API

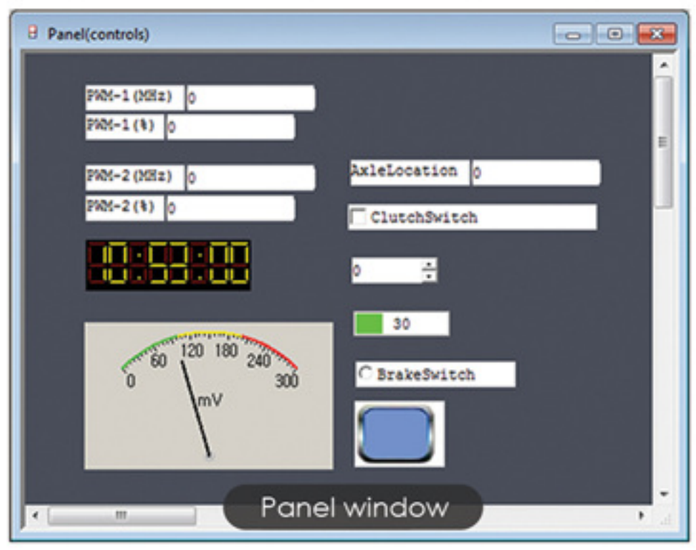
## CANIOAnalyzer

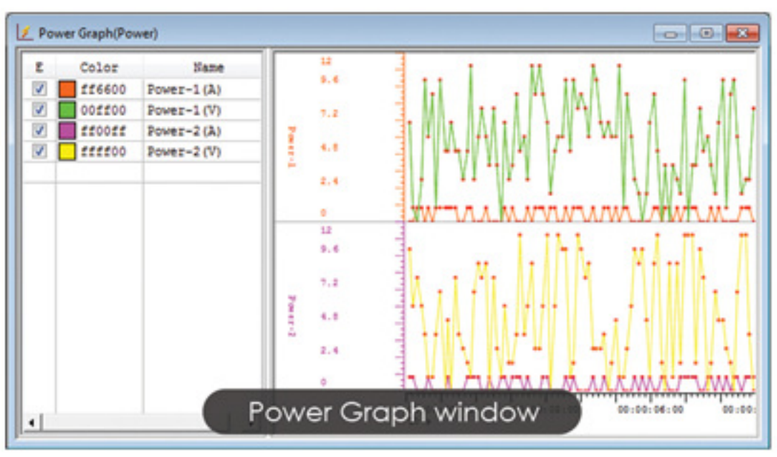
CanIOAnalyzer is dedicated software for Communication Test & Monitoring to generate the data implementing necessary functionality using a CAN communication and perform debugging features through a script file. CAN Analyzer is the main program that runs on the host PC. The host PC and CCS is connected via a power adapter, CANIOAnalyzer and system is connected through a socket and a CAN interface.

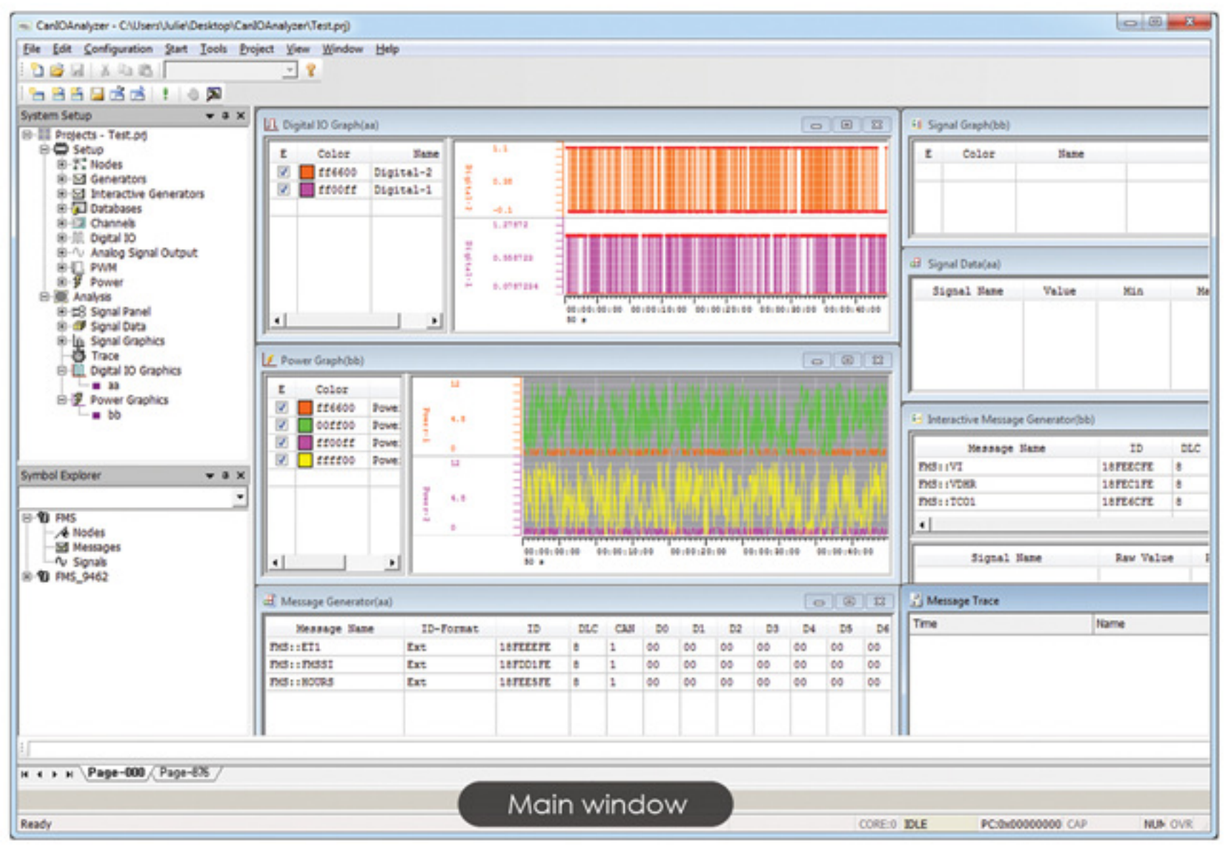




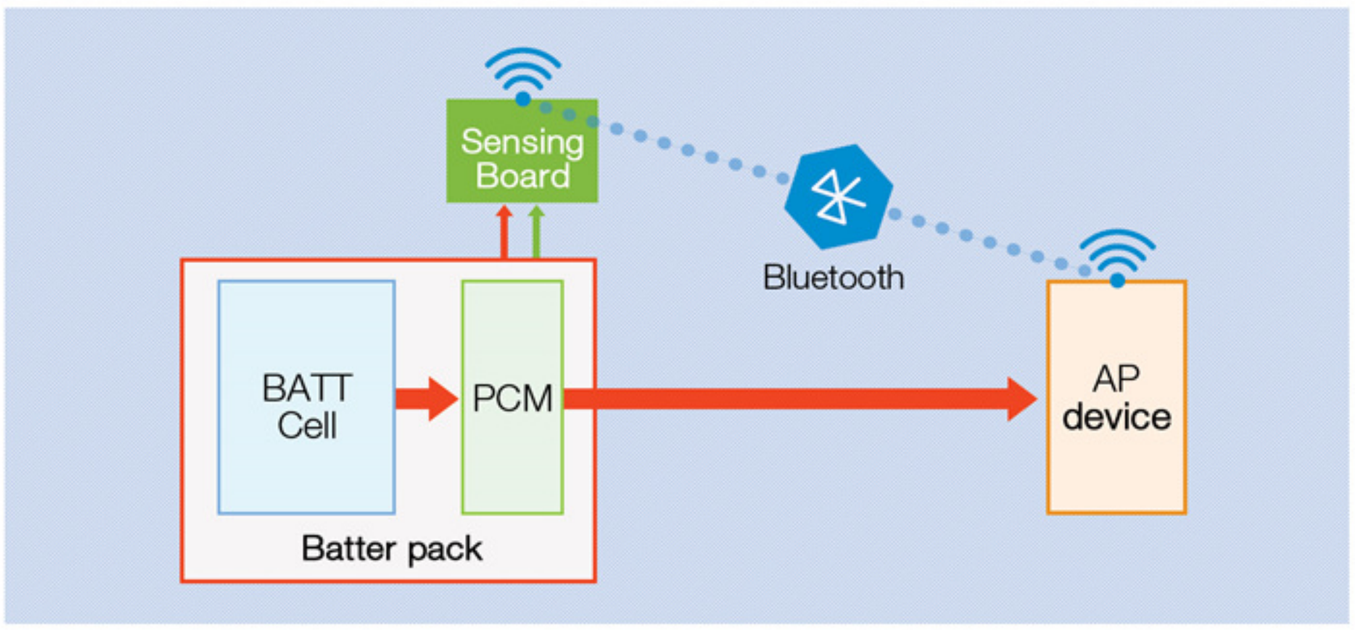
# Current-M Current/Voltage Sensing Module

This system is to measure the voltage/current consumed by the AP device out of the battery pack and transfer the date to the AP device over the wireless line.

**System Configuration**
- Battery Pack & AP device combination structure

**Battery Pack**
- Battery Sell + PCM Board + Sensing Board

* **Current-M** module works for **Sensing Board** function




## Current-M H/W Spec

| No | Classification | Value | Unit | etc | Remark |
|---|---|---|---|---|---|
| 1 | Current/Voltage Sensing | | | | |
| | Voltage measurement Range | 2.5 ~ 5.0 | V | 16 bit signed | Since it's out of board input power range, it can't be measured. |
| | Voltage measurement Range | 1.25 | mV | LSB value | Actual values in terms of: the measured value x 1.25 mV |
| | Current measurement Range | -3 ~3 | A | 16 bit signed | |
| | Current measurement Range | 100 | uA | 16bit Quantization | here is clearance.(It's necessary to design) |
| | Sampling Time Range | 1~100 | ms | Minimum Time: 1ms | |
| | Sampling variable unit | 1 | ms | | |
| 2 | Sensing Resister | | | | |
| | Sense(Shunt) Resister | 25 | mΩ | 0.5W class | When 3A flows, 0.025x3x3 = 0.225 W consumption |
| | Sensing Drop Voltage | 0.075 | V | When Max 3A flows | Voltage applied to Sense register(RSS) when the voltage generated from a battery via Sense register(RSS) is derived to AP board. |
| 3 | Storage Capacity | | | | |
| | Serial Flash Memory | 64 | Mbyte | 4 hours when 1ms sampling | When 1ms Sampling, 4KByte is needful per a second. Voltage & Current data type : 16 bits Signed Integer |
| 4 | Bluetooth | | | | |
| | version | v2.0+EDR | | | v2.1+EDR support |
| | Data rate | 3 | Mbps | Max | |
| | RFCOMM | | | | Profile : SPP |
| 5 | Sensing Board | | | | |
| | Input Voltage range | 2.5 ~ 5.0 | V | | Board input voltage |
| 6 | Dimension | | | | |
| | W x H x D | 40 x 20 x 3 | mm | TBD | Width x Height x Depth |
| | FPC connection | | | | By ZIF connector |

**J&D Tech Contact Point**

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## J&D Tech Technical Support

We do our best to provide prompt solution when our customers face technical queries or issues.

Customers can contact our CS team directly and FAE of overseas distributors. And also we provide J&D Tech Remote Control Support service. After sharing customer's PC and confirm the issue with our FAE, you'll be able to solve a technical problem quickly.

## Overseas Sales Network

J&D Tech Co., Ltd. has representatives in the following countries:

Taiwan
China
India
UK
Japan
Singapore
USA
France
Germany
Israel

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## About J&D Tech Co., Ltd.

J&D Tech Co., Ltd. is a high-tech company developing innovative debugging tools for embedded system industry. The company focuses on finding new technology that enables embedded system developers easily find bugs on their programs and make in-depth products. J&D Tech's debugging tools have used by major market leaders in fields of mobile, multimedia, consumer electronics, security, automotive, national defense, education, etc. J&D Tech is one of the fastest growing companies in a debugging tool business area, and its strength is a quick technical support and a tool customization service.

## Major Customers of CodeViser

Samsung, LG, Mediatek, Spreadtrum, Faraday, Hyundai Mobis, VIA, LeadCore, ZTE, BYD, Yulong, Ali Tech, Garmin, Sony, Philips, RDA Electronics, Telechips, MSI, MiTAC, Liteon IT, Compal, Wistron, Flytech, MindTree, etc

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