SD Host Tester -- SGDK330B

SolidGear

August 2015

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Overview

Mini POD

Main POD

Main BOX

USB
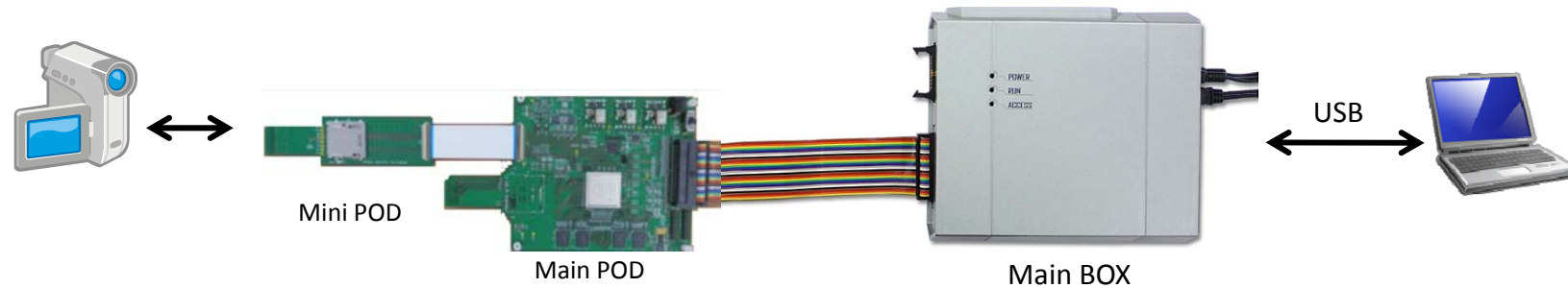
- ☐ **SGDK330B is controlled by application software installed in a PC.**
- ☐ **SGDK330B has only Analyzer function. It does not support SD Emulator/Tester function.**
- ☐ **Target Host is connected with SGDK330B through Mini PODs.**
- ☐ **SDA licensee can download application software to see log file.**

Feature

- ➢ **SGDK330B analyzes protocol between Host Product and Media.**
- ➢ **SGDK330B supports**
  - ✓ **SD card ver3.00**
    - **SDSC/SDHC/SDXC**
    - **UHS-I mode (208MHz)**
  - ✓ **SDIO ver3.00**
  - ✓ **eMMC ver5.1**
    - **4bit/8bit**
    - **HS400 / HS200 (200MHz)**

  <u>In some cases, Host product may not be able to access to media correctly at higher frequency because of influence of added capacitance of Mini POD.</u>

- ➢ **SGDK330B captures signals, analyzes its protocol, and displays logged information to the PC screen in user friendly format.**
- ➢ **Media access speed information, such as read latency and busy time, is displayed on the log.**
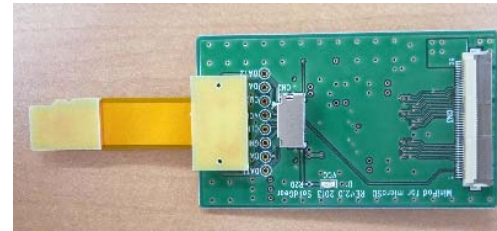- ➢ **User can define up to four commands, such as vendor unique command.**
- ➢ **4 level sequence trigger is supported. Trigger events are "error condition (CRC error, status error)", "address hit" ,"long busy" or external trigger in.**
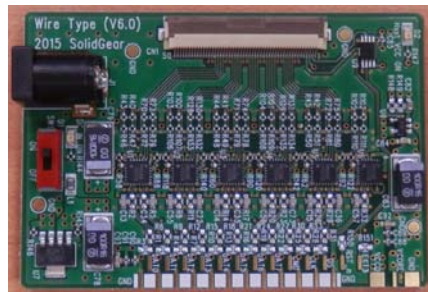
Mini POD

□ Signals between Host and media are propagated to SGDK330B through Mini POD.

[Mini POD for SD card]

[Mini POD for micro SD card]

[Wire type Mini POD for eMMC Rev6]
(HS200/HS400)

[Socket type Mini POD for eMMC (HS200)]

Sample LOG

```
002 ms    CMD18(...    ARG:0002A140 CRC:60        SC:8 IO=1.8V       SD :211.2MHz    Nrc:24
000 us    R1           RSP:1200000900D3 [47:0]     -                  SD :-           Ncr:10
186 us      Read       2E202020 20202020 202020... WaitTime:186us     SD :4bit        Nac:38225
005 us      Read       00000000 00000000 000000... WaitTime:0us       SD :4bit        Nac:38
005 us      Read       00000000 00000000 000000... WaitTime:0us       SD :4bit        Nac:38
005 us      Read       00000000 00000000 000000... WaitTime:0us       SD :4bit        Nac:39
005 us      Read       00000000 00000000 000000... WaitTime:0us       SD :4bit        Nac:39
005 us      Read       00000000 00000000 000000... WaitTime:0us       SD :4bit        Nac:38
005 us      Read       00000000 00000000 000000... WaitTime:0us       SD :4bit        Nac:39
005 us      Read       00000000 00000000 000000... WaitTime:0us       SD :4bit        Nac:39
076 us    CMD12(...    ARG:00000000 CRC:30        SC:8 fromCMD:3...   SD :198.0MHz    Nrc:65153
000 us      Read       00000000 00000000 000000... WaitTime:0us       SD :4bit        Nac:27
000 us    R1b          RSP:0C00000B007F [47:0]     -                  SD :-           Ncr:6
005  s    CMD13(...    ARG:35D00000 CRC:27        - IO=1.8V           SD :211.2MHz    Nrc:24
000 us    R1           RSP:0D000009003F [47:0]     -                  SD :-           Ncr:6
```

[SD card UHS-I 208MHz]

```
718 ms    CMD52(IO_RW_...  ARG:80000E03 CRC:0A     write FN0 Ad...    SD :51.1MHz     Nrc:Ove
001 us    R5               RSP:340000100749 [47:0]   Data:07          SD :-           Ncr:7
001 ms        int assert   -                         -                SD :-           -
018 ms    CMD53(IO_RW_...  ARG:28024610 CRC:36     Read Block F...    SD :51.1MHz     Nrc:Ove
000 us        int negate   -                         -                SD :-           -
001 us    R5               RSP:35000010005B [47:0]    Data:00         SD :-           Ncr:7
000 us      Read           21230000 21230001 21230... WaitTime:1us    SD :8bit        Nac:57
004 us      Read           21230100 21230101 21230... WaitTime:1us    SD :8bit        Nac:65
004 us      Read           21230200 21230201 21230... WaitTime:1us    SD :8bit        Nac:65
004 us      Read           21230300 21230301 21230... WaitTime:1us    SD :8bit        Nac:65
004 us      Read           21230400 21230401 21230... WaitTime:1us    SD :8bit        Nac:65
```

[SDIO 8bit]

Sample LOG

[eMMC 8bit DDR]

[eMMC HS400]

SGDK330A vs. SGDK330B

	SGDK330A	SGDK330B
Data size which can be saved to LOG when HS400 mode	256Byte (half of one sector)	512Byte (full of one sector)
LOG memory size	256MB	1GB

➢ Because of hardware restriction of SGDK330A, it can save only 256Byte (half of one sector) information to LOG file when HS400 mode. On the other hand, SGDK330B can save full of one sector information.

➢ SGDK330B has 4 times LOG memory of SGDK330A.

➢ SGDK330A also can analyze eMMC HS400 mode if wire type mini POD (Rev6) is used, but please note that it can save only half of one sector information to LOG file when HS400 mode.