J835F HIGH-SPEED NAND BURN-IN TESTER

Product Brief

Improve your performance with our fast, high productivity burn-in tester.

Aug.2021

J835F Overview

J835F High Speed NAND Burn-In Tester Overview

: J835F Memory Test System은 솔루션을 기반으로 한 NAND Burn-In Test를 목적으로 개발되었으며, 다양한 종류의 NAND Controller (SoC)를 기반으로 다양한 패키지 형태의 NAND 디바이스를 지원한다. 모두 시스템의 구성은 8 Chambers/8 Test System/8 computing system 으로 되어 있으며, 각각 독립 운영 할 수 있다

High-Speed

- At-speed test with cost-effective burn-in socket (667 Mbps ~ 1200 Mbps)
- Advanced thermal solution to spread out heat of devices for high-speed operation
- Fast control and gathering data with on-board FPGA

Productivity

- 32 slots with 8 independent chamber, Up to 4608 devices
- Concurrent test thread per target DUT

Reliability

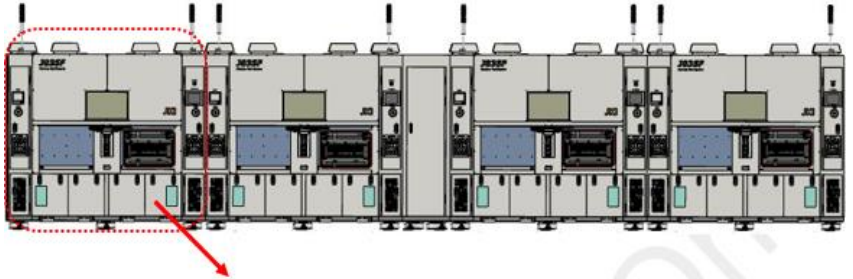
- Environmental test chambers with accurate and wide range of temperature control (-40℃~125℃)
- Programmable device power supplies
- Comply with environment and safety
- Self-diagnostics & easy maintenances

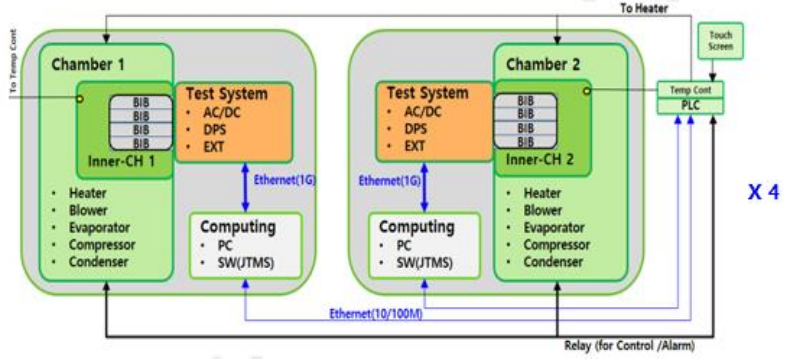
Applications

- Solution (SoC) based high-speed NAND burn-in test, reliability and qualification test

J835F NAND BI System Configuration

- **Target Application**: Solution based high speed NAND burn-in system
- **Parallel Testing** : Up to 4608 devices. (144 para per BIB * 32 sloes)
- **Test Speed** : up to SoC (SSD controller) Clock Speed
- **Chamber**
  - 32 slots with 8 chamber system (4 Slots per Chamber)
  - Temperature range: -40℃~125℃ (@Ambient)
- **Test System**
  - Power Supply
    - Main Power Supply: 1phase 208VAC input, 48VDC output
    - Device Power Supply (DPS): fixed and programmable power supply for BIB
  - Extension Board (EXT) : DPS to BIB control signal & power extension
- **Computing System**
  - Workstation: managing test system and saving test results.
- **Burn-in Board (BIB)** :
  - up to 144 Para for 152 FBGA (Total 4608 para : 144x32 slots)
  - BIB Main Board: delivering power and control signals
  - BIB Sub Module: SSD design based sub module (SoC + DRAM + NAND)
  - Heat sink for thermal dissipation
- **Software**
  - System O/S and Applications
  - FPGA Software for fast and parallel UART or SPI communication to SoC.
- **Security**
  - Over-temperature, Over-voltage, Over-current, Fan & Smoke sensors
- **Utility Specifications**
  - Power, Air, Water, Installation Area





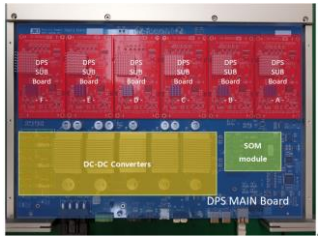
Test System Configuration

Test System

- **Main Power Supply** (AC-DC): 1 phase 208VAC input, 48VDC output.

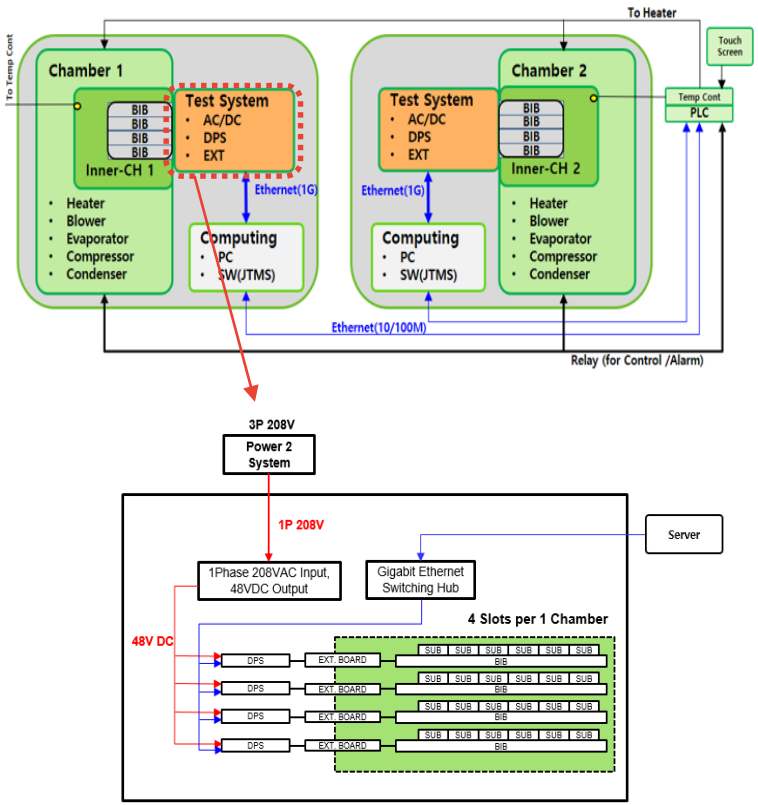
Power Source	Input Voltage	Output Voltage	Output Power	# of Source (per Zone)	# of Source (Total)	Total System Power
Main Power	1P 208Vac	48VAC	3 KW	2	16	48 KW

- **Device Power Supply (DPS)**:



  - Generates DUT powers and communicates SoC in BIB board.
  - Fixed and Programmable power supply.

- **Extension Board (EXT)** : To connect DPS and BIB.



Computing System

1. Workstation Specification

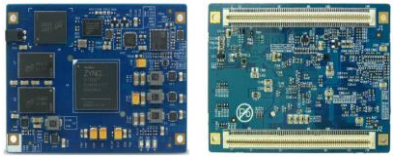
고성능의 Host Computing System은 최신 Intel Xeon process를 기반으로 dual socket architecture를 지원하며, 빠르고 안정적인 Storage 성능을 위해 고속 SSD를 사용한다.

Feature	Specification
Processor	Intel Xeon W-1290 (10 Cores, 20M Cache, base 3.2GHz, Up to 5.2GHz)
Memory	64GB, 4x16GB, DDR4 UDIMM ECC
Storage	512GB PCIe NVMe Class 40 M.2 SSD + 2T SSD (2.5")
LAN Port	4 Port Gigabit Network Card
Graphics	Intel Integrated HD Graphics
OS	Windows 10 Pro for Workstation

2. Linux-ready ZYNQ-based SOM Specification

모든 DPS 보드에는 각 Test Slot의 통신과 제어를 담당하는 Embedded Process를 탑재하고 있다. 이 Embedded Process를 포함한 SOM(System on Module)의 사양은 다음과 같다.

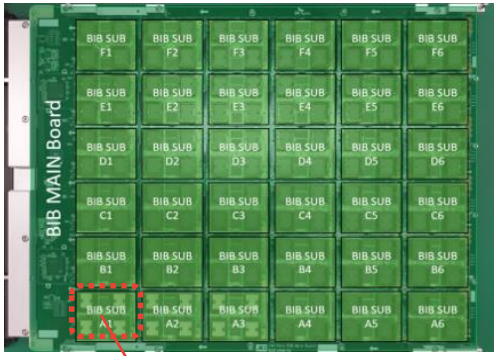
Option	Selection
Processor	667MHz Xilinx XC7Z020 Dual-core ARM Cortex-A9 Processor
Memory	1GB DDR3 SDRAM (2 x 512MB, 32-bit),
Storage	SD Card 8GB
LAN Port	On-board Gigabit Ethernet PHY
Operating System	Linux version 3.15.0-xilinx



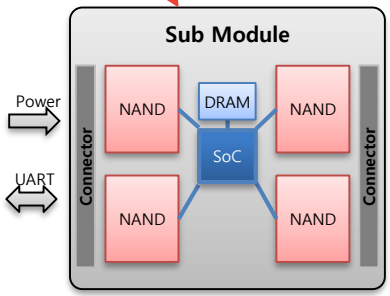
Burn-In Board (BIB)

Burn-In Board Configuration

- **Main Board: delivering power and control signals to Sub Modules.**
  - Fast control and gathering data with on-board FPGA
- **Sub Module: including NAND controller (*SoC) and NAND socket.**
  - At-speed test with cost-effective burn-in socket (667 Mbps ~ 1200 Mbps)
- **Heat sink for thermal dissipation for High-Speed Operation**



Burn-In Board



Sub Module

Chamber Specification

Item	Description	Remarks
Chamber Configuration	8 Chamber	2 Rack per Zone
Number of Slot	32 Slots	4 Slots per Rack
Slot Pitch[mm]	45mm	
Operating Temp Range[℃]	-40℃~125℃	*Ambient temperature (TA)
Temperature Uniformity (Load[W] / Uniformity[℃])	1.5kw[Zone] / [±3.0℃] x 8 Chamber = 12.0kw	
Ramp-Up/Down Rate	Within 60 min. @-40℃ to 125℃ Within 60 min. @125℃ to -40℃	*No load condition
Continuous Operation Time	-40.0℃ to -15.0℃ : 72 hour -14.9℃ to +15.0℃ : 5 days +15.1℃ to +125℃ : Every days	
Contact	Auto Contact	
Door	Auto Door	
Refrigerator	Compressor Rating: 4hp * 16 EA (2 EA @ Chamber) Dual stage refrigerating method	
Control Unit	PLC: YOKOGAWA FA-M3 Temp Controller: YOKOGAWA PLC F3CU04-OS 모듈	
Monitor	24 inch monitor	
Power Source	Chamber: 208Vac, 3Φ, 60Hz, 150A x 4 line System: 208Vac, 3Φ, 60Hz, 50A x 4 line	
Environment Conditions	Temperature / 25 deg(c) +/-5 deg(c) Humidity /20% ~ 60 Rh%	
Dimension and Weight	(W) 10600 × (D) 1920 × (H) 2250 mm / 8500 Kg	

Contact Information

- The JKI Product Support Group, Training Center, and Sales Department can be reached using the following information:

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DESIGN for TEST