SPEA

Systeme für
professionelle Elektronik
und Automation GmbH

35463 Fernwald
Ruhberg 2
Telefon +49 (0) 6404 / 697-0
Telefax +49 (0) 6404 / 697-120
http://www.spea-ate.de
eMail: spea@spea-ate.de

SPEA GmbH · Postfach 1149 · D-35461 Fernwald

wi/ka

by eMail

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QUOTATION No.

Pos. 1

SPEA 4040 Multimode
High speed Flying Probe testsystem
with linear motors and air bearing axis

- Prepared for fixed power supplies and additional plug- and fixed probe adaption

45014186.148 *4040 Multimode*

1.1 **SPEA 4040 base system**

mechanical movement module:

4 high speed Flying Probe testheads

- air bearing axis, maintenance free
- control of the x- and y-axis with linear motors
- control of testheads by optical encoder
- independent control of x-, y- and z-axis

• z-axis swing, programmable	0 - 35mm
• repeatability accuracy	25µm
• min. pad size	200µm
• range of contact	400 x 500mm

camera module for auto-alignment

- automatic recognition of reference test points
- automatic correction of test point co-ordinates
- optical working area: 400 x 500mm

test electronic modules:

modular and full parallel hardware architecture

- fully synchronous control of all stimuli- and measurement modules
- universal polyfunctional system resources with in-circuit-, cluster- and functional test capability

pulse force- and measurement technology with free programmable set-up of timing

- free programmable set-up of timing for each step
  free programmable current and voltage for each step
- time optimised measurements
- high throughput

test ranges

• Short	10mΩ - 1kΩ, 1%
• Contact/ Open	10mΩ - 10MΩ, 1%
• Resistors	10mΩ - 1Ω, 1% 1Ω - 100 kΩ, 0.5 % 100kΩ - 1MΩ, 1 % 1MΩ - 10MΩ, 2 %
• Capacitors	10pF - 1nF, 10 % 1nF - 10 nF, 3 % 10 nF - 1 F, 1 %
• Inductors	1 µH - 1 H, 10 %
• Diodes/ LED	Uf bei If, Ir bei Ur
• Zener diodes	Uz bei Iz, Uf bei If
• Transistors	Ubc; Ube; *Ucesat bei Ic; *Iceo bei Ib=0*
• FET's	Position and *switching characteristics
• Transformers	R; L; transformation and coil orientation
• Optocoupler	Position and *switching characteristics
• SCR	Position and *switching characteristics
• Relays	*Ron; *Roff; *Uswitch; *Uhold; *Ufall; t_switch; t_fall
• Switches	Ron, Roff
• IC	*parametric and dynamic tests according to library-models
• Power On	Power supply incl. power consumption measurement
• BOST	Control and acquisition of board on self test

* second stimulus required

high speed-, high voltage- and timing-measurement unit

- dynamic measurement unit
- measurement of current, voltage, frequency, time and pulse duty factor
- ranges of voltage: ±1V F.S., ±10V F.S., ±100V F.S.,
- 12 Bit resolution
- input characteristics differential and bipolar
- high input impedance $10^{10}\Omega$ in the range of ±10V
- trigger mode
  - internal
  - external
  - network (zero passage 50HHz)
- programmable measuring (instantaneous or window)
- interconnection AC or DC
- programmable measuring instant 1µs to 400s
- peak to peak and true RMS measurement
- sample and hold measurement
- overvoltage protection 250V
- programmable signal filters

1 ea high speed stimuli ±10V/±1A

- 4-quadrant controller
- voltage and current simultaneously programmable
- bipolar and bidirectional
- programmable stimuli voltage: 0V to ±10V; 2,5mV steps
- programmable current as source or sink: 2,5nA to 1A; 2,5nA steps
- programmable timing, synchronous 1µs to 400s
- formatable timing (continuous and pulse modes)

functional generator
including module for AC-quadrature measurements

- 0,4Hz - 100kHz
- output voltage -10 to +10V (direct), 5mV step
  -80 to +80 (stimulus modulation)
- voltage offset -10 to +10V (direct), 5mV step
  -80 to +80V (stimulus modulation)
- output impedance 0, 50, 600Ω, open
- output current 0 to 200mA (direct),
  0 to 3A (Booster-Modulation)
- 16 wave forms 8 standard, 8 customer specific

equipped with the following test points:
- 56 direct channels
- 4+2 wire bus
- reed relay matrix
- - 1A/100V

guarding module
- dynamic precision amplifier
- to isolate the components to be tested

communication processor (PC; industrial version)
- 1 GB dynamic RAM
- 2 hard disk with Raid controller
- 1 DVD-RW drive
- TFT monitor 19 "
- ASCII keyboard, mouse
- 6 USB 2.0

45020272.099 *LANDRIV20*

LAN-connection
RJ45-connection backward at the system
including wiring to communication processor and LAN-card

45013834.134 *PRT 50*

error printer

45011704.097 *SBL 100*

45011766.155 *LCK 100*

SHUTTLE-Board Loader:
motor controlled loading and unloading system
- ergonomic design for best attendance by the operator
- assembly will be insert and lock by using the “board locking system”
- system integrated conveyor system with pushing piston controlled shuttle
- PASS-back configuration operating mode

45013832.118 *HLD 20*

rotatable monitor arm

45011836.140 *PK 100*

preparation for transport: mounting of the system on pallet

Pos. 2 **Further modules**

2.1 **Extension and Tools for SHUTTLE-Board-Loader**

2.1.1 **connector interface**
In case of using the resources by means of connector and/ or fixed probes the system must be equipped with a connector interface:

45011717.128 *ATI 100*

Zero-Forcing connector-interface 1040
- interface in support of 248 channels (56 channels included in system)
- fixed Power Supplies
- system stimuli
- programmable power supplies

40010789.178 *BOOST80*

2.2 **high voltage stimuli ±80V/±1A**
- 4-quadrant controller
- voltage and current simultaneously programmable
- bipolar and bi-directional
- programmable stimuli voltage
- 0V to ±80V; 25mV steps
- programmable current as source or sink
- 250µA to 1A; 250µA steps
- programmable timing 2ms to 400s
- formatable timing (continuous and pulse modes)

45011477.152 *NZT-10*

2.3 **NZT-Test**
Test method to analyse the impedance of each net;
based on the patent of SIEMENS
- Increase of the fault coverage
- Reduction of test time
- Effective test of field returns (faulty boards)

Consisting of:
- Specific measurement
- Software for automatic test generation
- 2 days training for 2 persons at SPEA Germany

Pos. 3 **system software Leonardo**

3.1 **Operating system WINDOWS XP (in English) for the testsystem**

3.2 **software package RUNPACK Leonardo XA Fly for test system**
consists of the following software modules:

- operator console
- last failed task display
- automatic recycle on faulty test
- adjustment graphic bar
- BoardView - board layout and TP viewer
- PanelRun - execution for panel boards
- VariantRun - execution of variant testprogram
- MultMark - multiple fiducial mark acquire and recognition
- SelfTest - execution of selftest program

3.3 **software package DEBUGPACK Leonardo XA Fly for test system**
consists of the following software modules:

- test parameter editor
- last failed task display
- measured autocenter
- break point management
- step by step execution
- lop execution
- measurement recycle
- automatic recycle on faulty test
- one-shot test execution
- Pin finder
- search functions
- analogue measurement bar
- analogue measurement scope
- fiducial mark acquire and recognition
- visual test point check
- visual test point coordinate change
- visual probing movement simulator
- VisualDebug – analogue Test Graphic Debugger
- MultiShift – multiple test point coordinate change