

## Ping-pong type FPC universal test equipment

### The Overall Effect

The function of automatic ping-pong type FPC universal test machine.

The main modules:



1. Tray plate loading module
2. Tray dish check module
3. XY transfer take put material module;
4. test fixture module;
5. Scan code visual positioning module;
6. Fly on visual positioning module;
7. ICT + FCT has grown test host

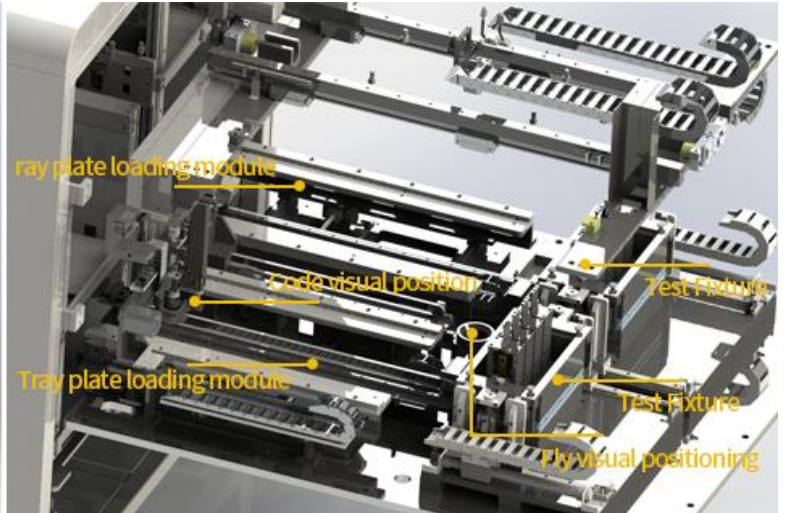
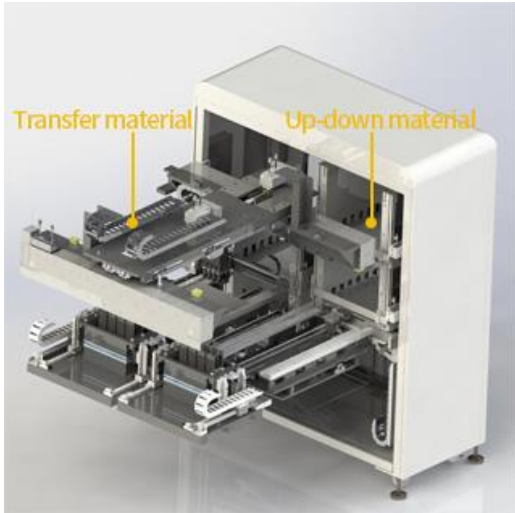
The overall dimension of equipment:

H: 2000 mm

W: 1450mm

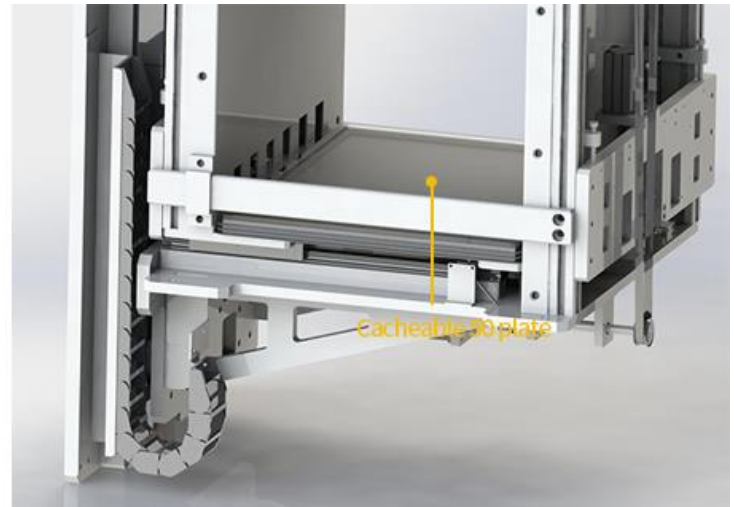
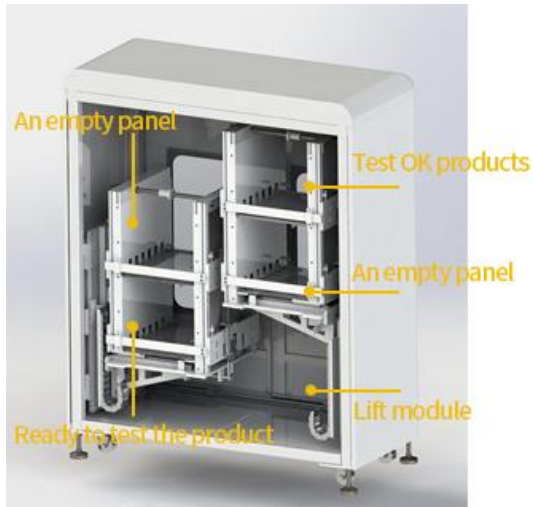
L:2150mm

Test height: 850 mm



<p>Artificial put 30-50 layer test product Tray was set into the feeding module.</p>	<p>&gt;</p>	<p>Dish Tray was feeding chute module to a test of the product Tray dish out one by positioning.</p>	<p>&gt;</p>	<p>Scan vision module reads products code or the shape.</p>	<p>&gt;</p>	<p>Transfer module 4 Z axis drain has read the code products, after completing fly take compensation movement to the visual into the corresponding test fixture.</p>	<p>&gt;</p>	<p>Transfer module 4 finish another test in the test fixture products suck, residual position in the Tray plate receiving module.</p>	<p>&gt;</p>	<p>Tray plate discharging chute module packed with measured products Tray dish into receiving module, a Tray was running over.</p>
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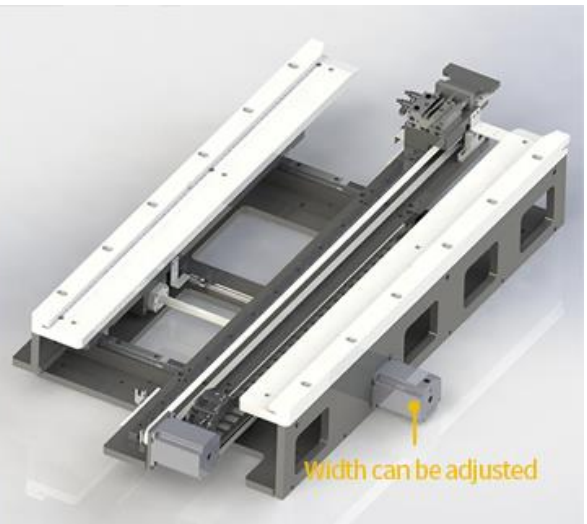
Tray Plate Poding Module



Module function is introduced:-

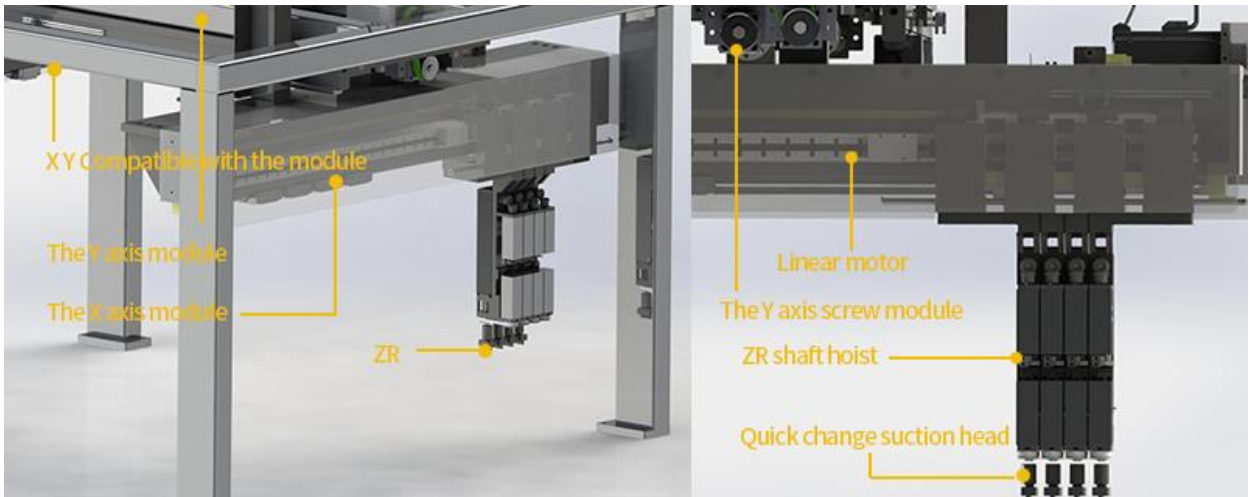
1. A single bin cacheable 50 PCS tray.
2. Lift module implementation with a test of the product Tray was set and move up and down the empty set and access bin.
3. It can be compatible with the length of 260-460 wide 260-360 tray, and with automatic adjustment function.

#### Tray Plate Material Module



1. Dish out the material with the method of hook is picking up, ensure smooth discharge, FPC soft board not easy shock
2. Support platform using POM material, smooth surface will not wear materials plate.
3. Support platform width adjustable, compatible with different sizes of raw material up and down.

#### Transfer Of Picking Module



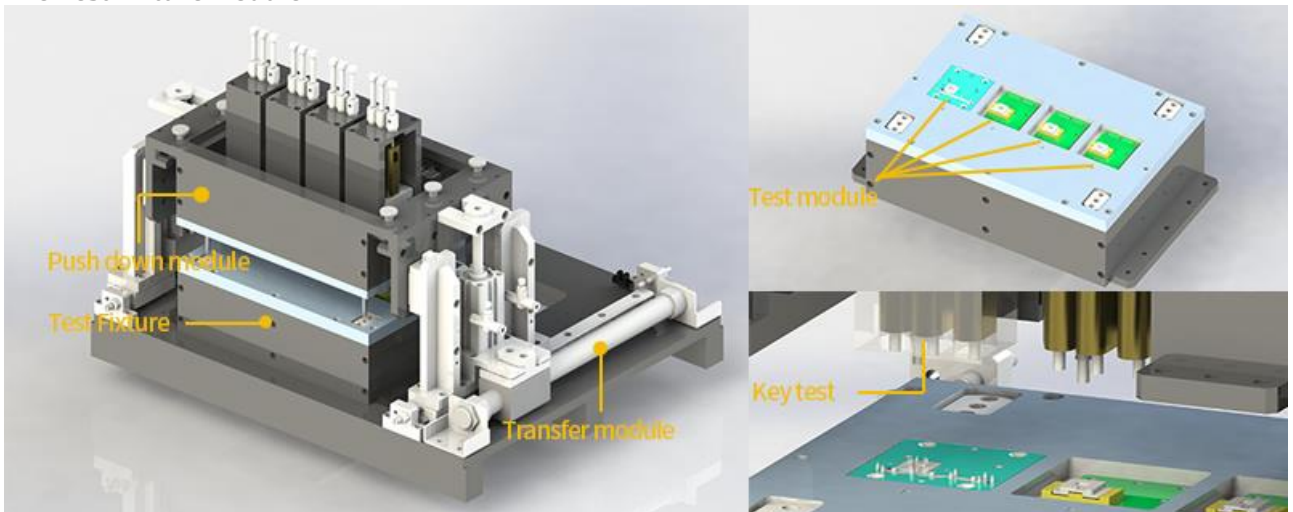
1. The X axis is moved by four actuators of a linear motor. The width can be automatically adjusted between the actuators, and four FPC soft plates can be taken and placed at the same time. The production time can be shortened to within 8S, and the capacity can reach more than 1800PCS/hour.

2. A single moving load Z and the R shaft lifting and rotation, can undertake handling of FPC soft plate and Angle adjustment and compensation Also equipped with a

3. X, Y axis in the test fixture front-end, convenient dot increases, the auxiliary function such as printing, scanning qr code.

4. Standard suction with the method of quick change, one minute can change the suction, convenient change models.

### The Test Fixture Module



1. Test fixture using hand twist way of quick release, can quickly change the model

2. Function test has 80% of the market integration of soft board function test.

Such as: test standard weight buttons, LED color brightness consistency test, voltage, current, audio test, TESTJET, communication, etc.

3. The generic ICT + FCT has grown – body standard testing machine, the change of product line is simple.



### A simple test interface (testing main interface)

PTI-818S Professional Test Inc.

条码: -  
板名: -

**就绪**

100%

统计	测试	重测	总数
测试	0 0.000%	0 0.000%	0 0.000%
通过	0 0.000%	0 0.000%	0 0.000%
开路不良	0 0.000%	0 0.000%	0 0.000%
短路不良	0 0.000%	0 0.000%	0 0.000%
元件不良	0 0.000%	0 0.000%	0 0.000%

权限	Admin
版本	2.8.1312.0
板名	S-C1709506A2.pji
文件名	S-C1709506A2.pji
测试顺序	HOSCF0
总测试	0
总时间	00:00:00
测试时间	0.00 s
步骤数	96
跳过步骤数	0
失败步骤数	0
用户	Admin
ShiftNum	0
LotId	0
用户组	程序默认组
光电保护	启用

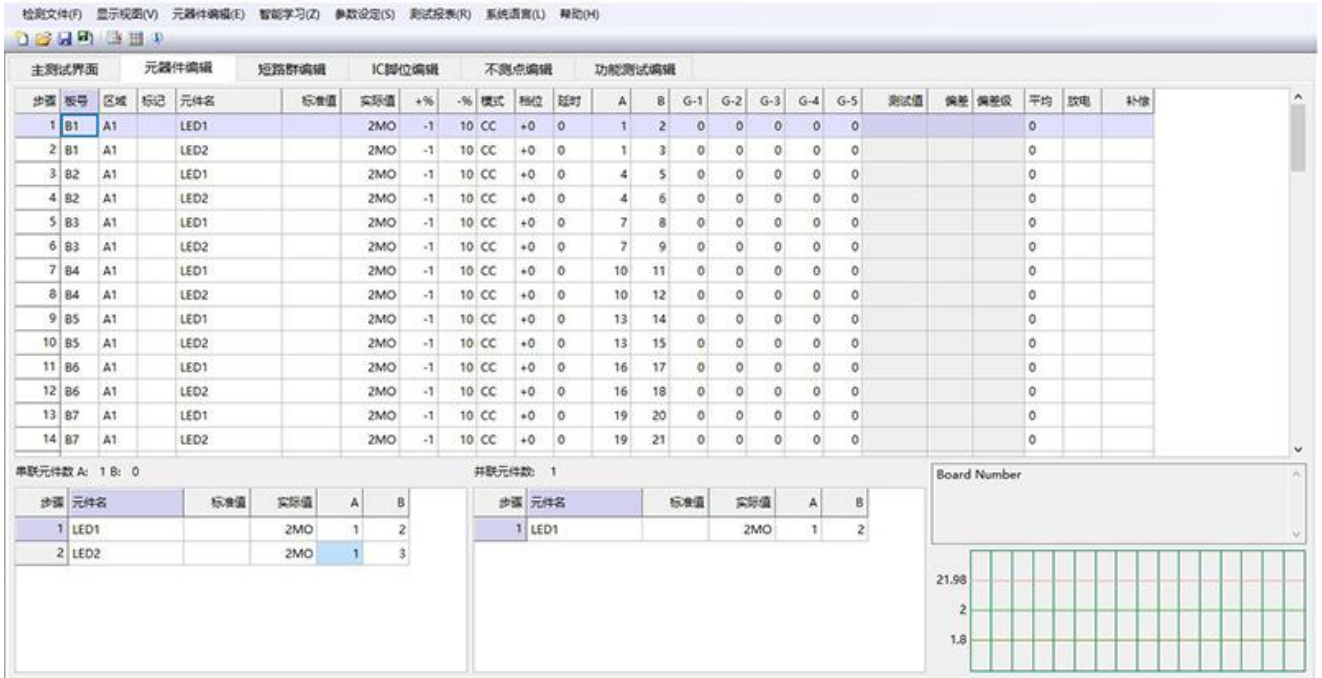
测试 | 测试中断 | 图形显示 | 打印  
参数设置 | 系统自检 | 不良元件排行 | 不良探针排行  
多联板生成 | 针点查找 | 光电应用 | 自动测试

### A simple test interface (Dynamic functional test editing interface)

步骤	板号	描述	模块	类型	功能	延时	测试	偏差
1	B1	POWER_SET	电源模块	配置	HVCC	50		
2	B1	POWER_ON	电源模块	上电	HVCC	200		
3	B1	LED1_ON	数字模块	通道建立	通道开启	10		
4	B1	LED1_M	模拟模块	电压测量	单端测量	100		
5	B1	LED1_OFF	数字模块	通道建立	通道关闭	0		
6	B1	LED2_ON	数字模块	通道建立	通道开启	10		
7	B1	LED2_M	模拟模块	电压测量	单端测量	50		
8	B1	LED2_OFF	数字模块	通道建立	通道关闭	0		
9	B1	POWER_OFF	电源模块	断电	HVCC	0		
10	B2	POWER_SET	电源模块	配置	HVCC	50		
11	B2	POWER_ON	电源模块	上电	HVCC	200		
12	B2	LED1_ON	数字模块	通道建立	通道开启	10		
13	B2	LED1_M	模拟模块	电压测量	单端测量	100		
14	B2	LED1_OFF	数字模块	通道建立	通道关闭	0		
15	B2	LED2_ON	数字模块	通道建立	通道开启	10		
16	B2	LED2_M	模拟模块	电压测量	单端测量	50		
17	B2	LED2_OFF	数字模块	通道建立	通道关闭	0		
18	B2	POWER_OFF	电源模块	断电	HVCC	0		
19	B3	POWER_SET	电源模块	配置	HVCC	50		
20	B3	POWER_ON	电源模块	上电	HVCC	200		
21	B3	LED1_ON	数字模块	通道建立	通道开启	10		
22	B3	LED1_M	模拟模块	电压测量	单端测量	100		
23	B3	LED1_OFF	数字模块	通道建立	通道关闭	0		

配置 | HVCC | 通道: | 电压(V): 30 | 电流(mA): 0.01 | 标准值: | +%: | -%: | 延时(ms): 50 | FN Ri: |

### A simple test interface (Static component test editing interface)



A simple test interface (Power on self-check function)



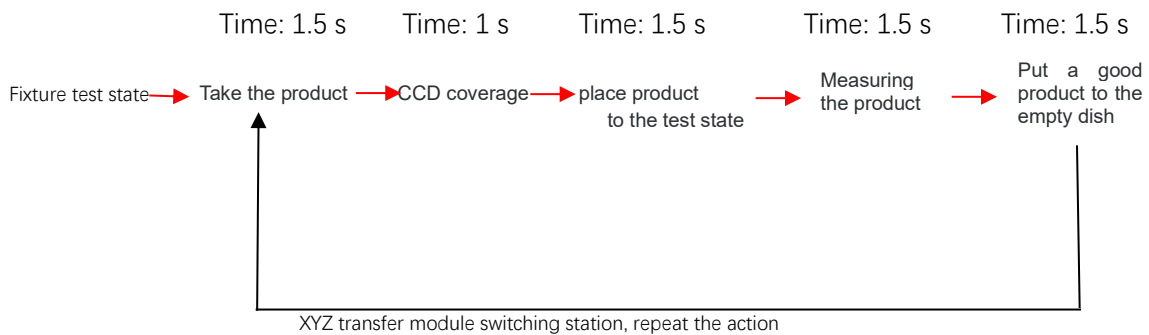
Sweep, fly visual positioning module



1. scan code visual module can scan code of FPC soft plate, and it can also be fixing the disorderly incoming FPC soft board fetching ( affect the test speed).
2. Fly taps as at high speed out of the drain of the outline of FPC, 0.5 seconds to complete the position of the four pieces of FPC soft board compensation, monolithic FPC visual position precision can reach 0.02 mm.

### Action process

Automatic FPC general test maneuver process:



The whole line efficiency (C/T UPH) budget: beat calculate by 7 s / 4 pcs. (Use individual FPC products as a reference).

1. The C/T = 7 s / 4 PCS (refer to the test time is less than 3s products, more than 3s according to the actual test time calculation function).
2. UPH= 3600 s/C/T \* 85% =1750 PCS/H (FPC products as reference)
3. practical efficiency and budget there may be differences.

### Core technical indicators

- 1 . production capacity to meet the fastest product testing 1800 PCS/H (linear electric module and fly for technology to improve the overall efficiency)
- 2 . Yield rate through rate reached 99.5% (that is the false-positive rate less than 0.5%).
- 3 . product failure rate is lower than 1%

**common FPCA test equipment comparison table**

Common FPCA soft board test equipment performance comparison table

No.	item	manual test	Turn type test	other company ping-pong type	our equipment	Remark
1	capacity	100-400pcs/H	900-1200pcs/H	850-1200pcs/H	1800-2000pcs/H	4 tips
2	first pass yield	97%	99%	98.5%	99.5%	
3	equipment failure rate	human aspect	≤1%	≤2%	≤1%	
4	degree of automation	Pure manual	semi-automatic	full-automatic	full-automatic	
5	Compatibility of existing equipment	compatibility	incompatible	Partially compatible and partially incompatible	Fully compatible	ICT for general test equipment
6	Test platform versatility	general	not in common use	Some are universal and some are not	general	Refers to the test software development platform
7	static testing	standard configuration 256 points	standard configuration 128 points	standard configuration 192 points	standard configuration 256 points	Refers to components and short circuit testing
8	Dynamic functional testing	need 2 development	need 2 development	need 2 development	Most integrated soft board function test project (such as: voltage, current, button switch, LED, audio, airtight, communication, etc.)	
9	maintainability	simple and convenient	High integration, difficult to maintain	Open type, easy maintenance and replacement	Open type, easy maintenance and replacement	
10	Equipment cover an area of an area	desktop	About 1.8 m <sup>2</sup>	About 3.4 m <sup>2</sup>	About 3.1 m <sup>2</sup>	With up and down bin, do not contain bin 2.2 m <sup>2</sup>