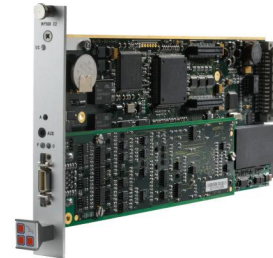


MP300 TPC1



OVERVIEW :

This production tester will typically be used in the following contexts :

OS loading, pre-personalisation, or personalisation of micro-modules and smartcards
Personalisation of SIM, U-SIM, Mega-SIM and banking cards
Reel to reel test handlers

The main features of the MP300 TPC1 are :

Possibility to install up to 4 MP300 TPC1 modules on the same mother board
Support of the ISO/IEC 7816-3 and –4 protocols
Full implementation of the T=0 and T=1 protocols
Support of SD/MMC and USB 2.0 protocols
Support of numerous memory chips
Open for implementation of custom protocols
Endless possibilities of protocolary customisation
Support of the fastest smartcards
Compatible with wafers, micro-modules, smartcards, M2M components
Fast hardware assisted data transmission mechanism, ensuring the maximum throughput for CPU and memory modules
Advanced electrical test and measurement features (open/short, leakage, chip consumption, ...)
Open platform : integrate the MP300 TPC1 inside your own personalisation environment
Compatible with the MVPi production machine interface

SPECIFICATIONS :

Number of independent test heads per board : 1

Supported protocols

ISO/IEC 7816-3	
T=0 and T=1 protocols	100% implemented, managed by firmware
Hardware acceleration	Transmission and reception of characters managed by the MicroSmart technology
MMC 4.1 / SD	

Data bits	1 and 4 data bits
File format	Can be implemented on demand
Low level commands	Available
USB 2.0	
Available speeds	Low speed, full speed
Classes	ISO/IEC 7816-12, mass storage, custom protocols
Synchronous chips (memory chips)	
Available libraries	T2G Eurochip SLE 4442 SLE 4407 AT24CXX
Custom protocols development	Available
Hardware acceleration	Available
Raw mode	
Gives the possibility to exchange frames without any Protocolary encapsulation	
Out of standard chips support	
Benefit from Micropross' experience in smart card programming	

Programmable parameters

Physical parameters	
Voltages	
Vcc	0V to 5.5V
Vol	0V
Voh	1.65V to 5.5V
Vil	30% of Voh
Vih	70% of Voh
Frequency	
ISO 7816 and MMC/SD clock frequency	10kHz to 20MHz
ISO 7816 clock duty cycle	30% to 70%
Pin states	
All pins are independent from each other, and can be separately managed.	
ISO 7816 communication parameters	
ETU width	From 1 to 4096 clock cycles (bit sampling adjustable)
BGT, initial ETU width	Adjustable in clock cycles
BWT, CWT, EGT, RGT, WWT	Adjustable in ETUs
Clock stop at high or low state	Adjustable
Clock stop tG and tH timings	Adjustable in clock cycles
Parity control	Can be forced to 0, 1, odd, even
Input parity error checking	Can be disabled
Pull-up resistor	5k Ω ; or 20k Ω ;

Available tests

Electrical tests	
Open/short test	
Available contacts	Contact C1, C2, C3, C4, C5, C6, C7, C8
Forced current	Adjustable between \sim 500 μ A and 500 μ A
Leakage current measurement	

Available contacts	Contact C1, C2, C3, C4, C6, C7, C8
Measurement ranges	+/- 5mA + - 500µA
Voltage measurement	
Available contacts	Contacts C1, C2, C3, C4, C6, C7, C8
Range available	+/- 10V (accuracy : 20mV)
Modes available	Dynamic mode : we give you an analog like vision of the voltage on the pin you chose from the moment you chose Static mode : we give you the instant voltage value
Current measurement	
Available contacts	Contacts C1, C2, C3, C4, C6, C7, C8
Ranges available	+/- 250mA +/- 100mA +/- 25mA +/- 5mA +/- 500µA
Modes available	Dynamic mode : we give you an analog like vision of the current on the pin you chose from the moment you chose Static mode : we give you the instant current value on the selected contact
Parametric tests	
Available contacts	Contacts C1, C2, C3, C4, C6, C7, C8
Modes available	Force a current, measure a voltage Force a voltage, measure a current
Logical tests	
Anti tearing test	
Simulate the chip's immunity against tearing from the reader	
Timing measurement	
Measure the chip response to a command	
Personalisation assisted by hardware	
Do not lose a microsecond while sending data to the chip thanks to the hardware assisted data sending mechanism	

Memory extension

Possibility to extend the memory size available, by using a high memory density MMC/SD SIM chip. This component can also be used as ref

Communication parameters

USB 2.0
TCP/IP 10/100 Mbps
RS 232

Software development

Remote development (the code is executed from the PC)	
Elements available	MPSDK .NET library available on demand Communication Dll supplied
Supported programming languages	C, C++, VB, Java, .NET Any language that supports Dll
Embedded development (the code is executed directly by the MP300)	

Recommended cross compiler	Windriver compiler (prefered version : 4.4b)
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User Interface

MPScope, MVPi

SOFTWARES :

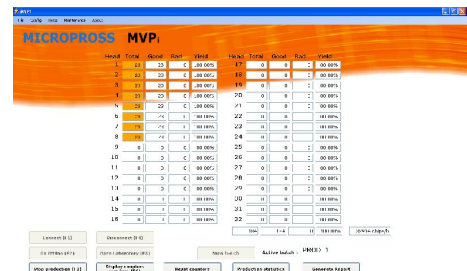
The MP300 TPC1 can be accessed using several ways :

First, using the driver dll that we supply, which enables the user to access all functionalities of the MP300 TPC1 from any programming language that supports Dll

For users preferring to embed their code directly inside the MP300 TPC1, Micropross has designed the SORB interface, which completely encapsulates all programming tasks related to the management of embedded applications, and lets the user focus on the smartcard oriented code

Finally, we can also supply our own user interface, MVPi, which elegantly conciliates convenience of use, high throughput and stability.

MVPi is able to handle up to 32 test heads at the same time, but upgrades are easily possible.



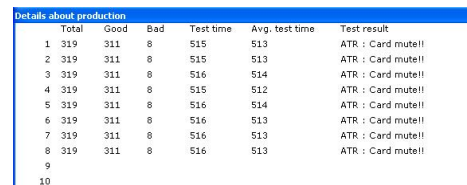
Head#	Total	Good	Bad	Test	Time	Avg	Test	Time	Result
1	319	311	8	515	513	1.61	1.61	1.61	ATR : Card mute!!
2	319	311	8	515	513	1.61	1.61	1.61	ATR : Card mute!!
3	319	311	8	516	514	1.62	1.62	1.62	ATR : Card mute!!
4	319	311	8	515	512	1.61	1.61	1.61	ATR : Card mute!!
5	319	311	8	516	514	1.62	1.62	1.62	ATR : Card mute!!
6	319	311	8	516	513	1.62	1.62	1.62	ATR : Card mute!!
7	319	311	8	516	513	1.62	1.62	1.62	ATR : Card mute!!
8	319	311	8	516	513	1.62	1.62	1.62	ATR : Card mute!!
9									
10									

Statistics are available, either separated between all test heads, or displayed for the whole system



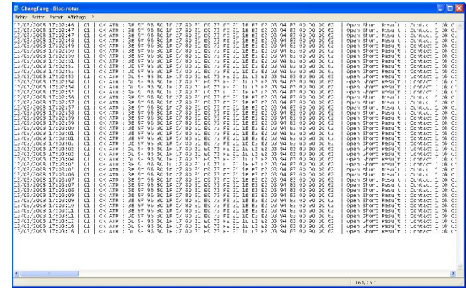
Head 3	217 (Carte mute)	4	(100.00%)
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More statistics are available, showing the current test time, as well as the average one.



Total	Good	Bad	Test time	Avg. test time	Test result	
1	319	311	8	515	513	ATR : Card mute!!
2	319	311	8	515	513	ATR : Card mute!!
3	319	311	8	516	514	ATR : Card mute!!
4	319	311	8	515	512	ATR : Card mute!!
5	319	311	8	516	514	ATR : Card mute!!
6	319	311	8	516	513	ATR : Card mute!!
7	319	311	8	516	513	ATR : Card mute!!
8	319	311	8	516	513	ATR : Card mute!!
9						
10						

As smartcards are being produced, logfiles are also generated, that allow to keep track of the produced components. The content of this logfile is controlled by the user.



ACCESSORIES :

Micropross supplies a complete range of accessories for the MP300 TPC1, that include :

Various sizes of rack housing, who allow to protect the Micropross testers from any kind of danger

External smartcard readers, for application development, or integration into manual working places

Oscilloscope probe adapters

The MVPi software interface, that allows to easily integrate our MP300 production tools inside production machines

We also supply packages to extend the warranty of the tester. Please ask us for the maintenance contracts available.