

Smart Panel Series

Fast-Track From Prototype to Production

Lower TCO

Accelerate TTM

High Flexibility

What is Smart Panel?

To accelerate the development of smart devices, ADLINK's Smart Panel is an all-in-one Open Frame Panel PC offering flexible configuration with a high level of modularization. Coupled with ADLINK's unique Function Module (FM) design, Smart Panel speeds prototyping based on application requirements with reduced time, effort and cost. System integrators, integrated solution providers, and brand vendors can all achieve project success in transportation, retail, hospitality, industrial automation, healthcare, and gaming applications, and more.

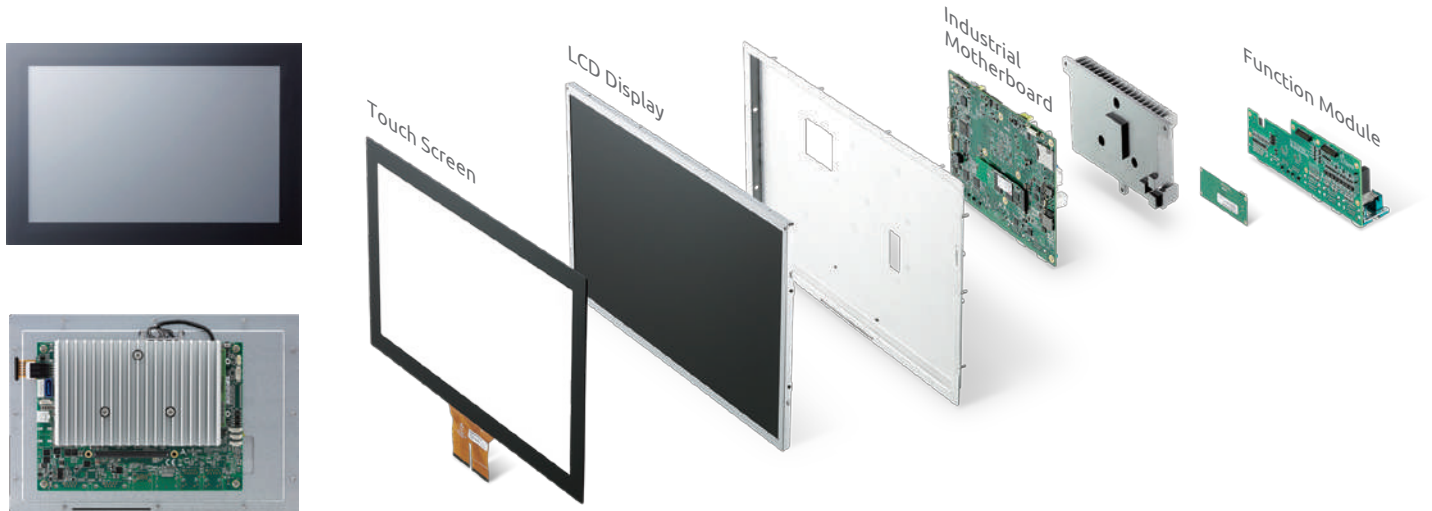


Figure 1: ADLINK's Smart Panel is an Open Frame Panel PC based on a modular design and can be embedded in all types of end products.

Key Benefits of Smart Panel

- Accelerate Time to Market
- Lower Total Cost of Ownership
- Enhance Design Flexibility
- Unlimited Applications with Function Module (FM)

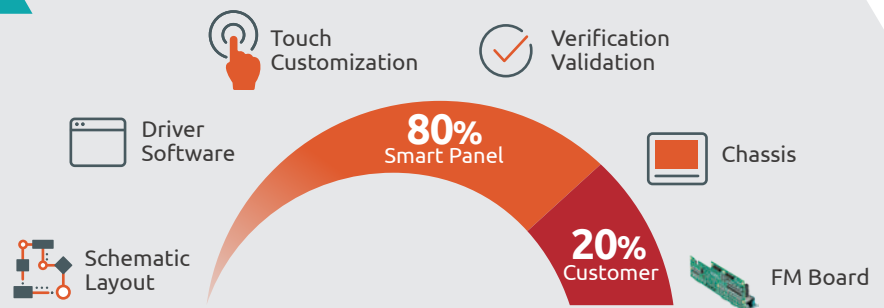
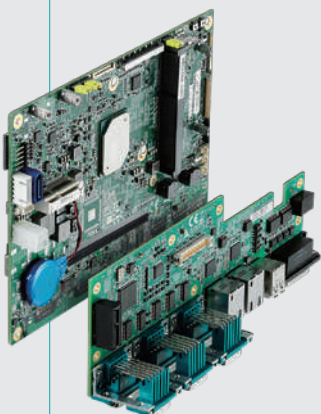


Figure 2: Smart Panel enables an 80/20 development model, wherein customers can have 80% of the design ready for use, and only need to spend 20% of the time on mechanical design evaluation and FM board customization.

ADLINK's Smart Panel provides a flexible embedded building block solution, enabling clients to fast-track development, verification, and validation of smart devices while enjoying significant savings in time, money and resources.

Smart Panel delivers common application features with a modular design, enabling custom selection of touch panel type, display size, mainboard, I/O interface, and heat sink. Based on Intel Atom® and Intel® Core™ processors, the Smart Panel's mainboard supports wide-ranging I/O interfaces including USB 2.0, I²C adapter, 32 function keys, power control and audio control. The power supply comes with 12V and 9-36V options and is also available through external isolated power modules or uninterrupted power supply (UPS) systems.

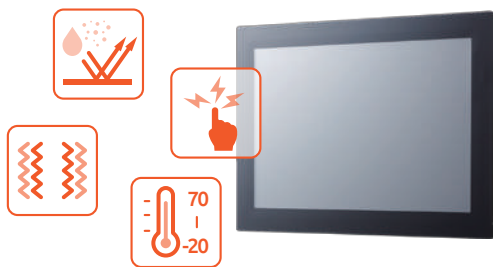
To empower application-specific features, function enhancement or I/O expansion are fully supported through ADLINK's FM board or I/O boards from partners and clients via a board-to-board connector. The availability of FM today allows vendors to easily develop I/O suitable for any vertical applications with significantly reduced R&D cycles and costs.



Industrial-grade Smart Panel

To maintain long-term reliable operation, Smart Panel features robust construction, meeting or exceeding rigorous industry standards. The mainboard supports a wide temperature range from -40°C to 85°C, rugged SODIMM, wide DC input voltage range, overvoltage protection (OVP) and undervoltage protection (UVP).

The preloaded Smart Embedded Management Agent (SEMA®) utility allows remote monitoring of system performance and status to allow predictive maintenance.



For environments in which excessive moisture and contaminants are possible, Smart Panel can provide IP65-rated resistance without adhesives. Smart Panel further provides long life support, with the proven stability of Intel® processors and display modules, alleviating concerns for long term supply availability.

SP-AL Series

- Intel Atom® x5-E3930/x7-E3950 processor
- 5-point capacitive or 1-point 5-wire resistive touch screens
- External I/O:
 - 1x DisplayPort, 1x USB 2.0, 1x USB 3.0, 2x GbE ports
 - 2x COM port (RS232/422/485)
- Internal I/O:
 - 1x mPCIe slot, 1x USIM slot, 1x USB 2.0, 2x I²C, 1x 8 GPIO
- Expansion I/O:
 - Customization with FM board
- Storage options: 1x eMMC, 1x SATA, 1x M.2
- Built-in ADLINK SEMA management solution
- 2x 2W speaker, 1x Mic in/Line out
- Front side IP65 protection

SP-KL Series (Coming Soon)

- Intel® Core™ i7-7600U/i5-7300U/i3-7100U processor
- Capacitive and resistive touch screen
- External I/O:
 - 1x DisplayPort, 1x USB 2.0, 1x USB 3.0, 2x GbE ports
 - 2x COM port (RS232/422/485)
- Internal I/O:
 - 1x mPCIe slot, 1x USIM slot, 1x USB 2.0, 2x I²C, 1x 8 GPIO
 - 1x DisplayPort
- Expansion I/O:
 - Customization with FM board
- Storage options: 1x eMMC, 1x SATA, 1x Micro SD, 1x M.2
- Built-in ADLINK SEMA management solution
- 2x 2W speaker, 1x Mic in/Line out
- Front side IP65 protection

Platform

SP-AL: Intel Atom® x5-E3930/x7-E3950 (2/4c, 6/12W)

SP-KL: Intel® Core™ i3/i5/i7 (2c, 15W)

Smart heat sink for SP-AL3930
Big heat sink for SP-AL3950 and SP-KL i3/i5/i7



I/O and Function



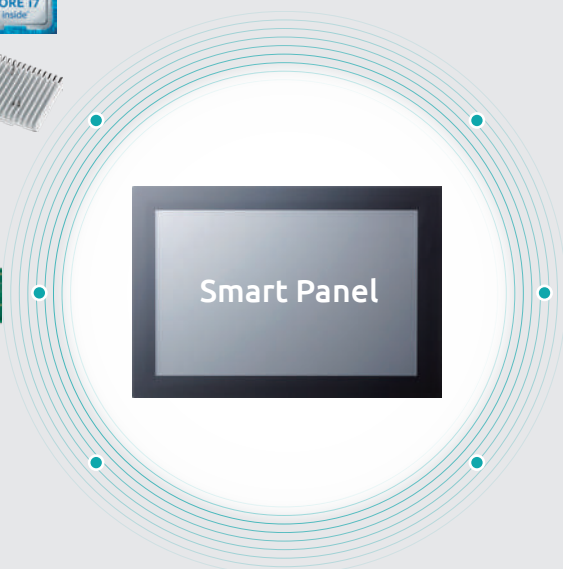
Coast I/O



Internal I/O



Expansion Function



LCD Panels

Front bezel: IP65 protection
16:9 wide screen



Touch Screen



5-points PCAP



5-wire Resistive

DC Input Specification



12V



9-36V

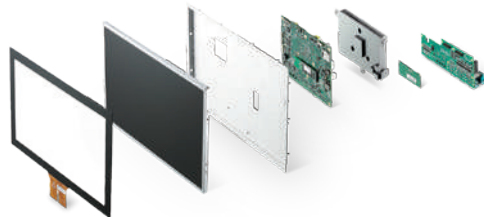
Operating System

Linux, Windows 10,
Android (For SP-AL only)



Figure 3: The internal design achieves a high level of modularization and thereby provides optimal flexibility.

Smart Panel - AL Series

Model Name	SP-07WP-AL Series	SP-10WP(R)-AL Series	SP-12WP(R)-AL Series	SP-15WP(R)-AL Series	SP-18WP(R)-AL Series	SP-21WP-AL Series
Product Image						
System						
Processor	Intel Atom® x5-E3930 / x7-E3950					
Memory	1x SODIMM socket, DDR3L 1600MHz (Up to 8GB), supports rugged SODIMM					
Storage	eMMC 5.0, up to 64GB (Optional) 1x SATA header for 2.5" SSD or HDD, 1x M.2 slot, type 2280					
External I/O**						
Ethernet	2x GbE (Standard: Intel® I211-AT, Option: Intel® I210IT), RJ-45, WOL					
Serial Port	2x RS-232/422/485 programmable, support 9 bit mode and auto flow					
USB 2.0	1x USB 2.0, Type A, OCP, 1000mA					
USB 3.0	1x USB 3.0, Type A, OCP, 1600mA					
DisplayPort	1x DP, DP++, supports resolutions up to 4096 x 2160					
Internal I/O						
Mini PCIe	1x mPCIe slot (PCIe + USB), compliant with PCIe mini card spec v1.2, supports full/half size					
USIM	1x SIM slot for 3G/4G communication					
USB	1x wafer, supports camera or dongle					
I²C	1x wafer, supports IoT sensors (not including algorithm), 2x wafers for I²C clients					
Audio	1x wafer, supports 2x 2W stereo speaker, built-in amplifier, 1x wafer, Mic-in, mono, Line-out					
Keys	1 box header, supports physical key x 32 for data input 1 wafer, supports LCD bcklight up/down, volume up/down (Optional)					
GPIO	1x wafer, supports 8-pin GPI/O					
Power						
Connector	1x 4 circuit mini fit					
DC Input	AT/ATX 12V, OVP/UVP ±15% / 9-36V, OVP/UVP ±5%					
AC Input	120W/160 W AC-DC adapter (Optional)					
Power/Fail Reset	1x wafer, supports system reset & power button, 1x power LED					
Backup Battery	1x wafer for backup battery for RTC, 1x wafer for UPS kit to backup data when AC shuts down (Optional)					
Notification						
Thermal Sensor	1x CPU Tj, 2 x PCBA top & bottom-mounted thermal sensors (Optional)					
TPM	TPM 2.0 (Optional)					
LED Indicator	1x wafer, supports 1x power, 1x storage, 4x COM (Tx & Rx) 1x WDT, 3x user-defined					
Debug port	1x DB40					
Mechanical Bracket						
IP Grade	IP65 for front					
Material	SGCC					
Display and Touch						
	7"	10.1"	12.1"	15.6"	18.5"	21.5"
Display Ratio	16:9					
Display Resolution	1024 x 600	1280 x 800		1366 x 768		1920 x 1080
Display View Angle	75/75/70/75	85/85/85/85	89/89/89/89	85/85/85/85	85/85/80/80	60/60/70/70
Luminance (Nits)	250 cd/m²	400 nits (typ)	400 nits (typ)	400 nits (typ)	450 nits (typ)	500 nits (typ)
Touch Screen	5 points capacitive touch screen or 1 point 5 wire resistive touch screen, full-flat					
Environmental						
Operating Temp.	-20 to 60°C	-20 to 60°C	-20 to 70°C	0 to 50°C	0 to 50°C	0 to 50°C
Storage Temp.	-20 to 70°C	-20 to 70°C	-20 to 70°C	-20 to 70°C	-20 to 70°C	-20 to 70°C
Operating Humidity	10-90% RH operating, non-condensing, 5-95% RH storage					
Vibration	OP 5 Grms, 5-500Hz (with SDD), EN61373 Class 1B (Railway reliability), ISO 7637-2					
Shock	OP 100G peak acceleration, 6 ms (with SSD), EN61373 Class 1B (railway Reliability)					
ESD	Air: ±15kV, Contact: ±8kV					
Software						
SEMA	SEMA 3.5					
WDT	Watch Dog Timer supported					
Operating System	Windows® 10 64-bit, Linux Ubuntu 16.04 LTS, QT compatible, 64-bit, Android*					

* Android support will be available in Q4 2018.

** External I/O can be opted out for FM boards.

Smart Panel - KL Series

Model Name	SP-07WP-KL Series	SP-10WP(R)-KL Series	SP-12WP(R)-KL Series	SP-15WP(R)-KL Series	SP-18WP(R)-KL Series	SP-21WP-KL Series
Product Image						
System						
Processor	Intel® Core™ i3-7100U 2.4 GHz/ Intel® Core™ i5-7300U 2.6/3.5 GHz/ Intel® Core™ i7-7600U 2.8/3.9 GHz (Turbo) 15W					
Memory	1x SODIMM non-ECC 1867/1600 MHz DDR3L memory up to 16GB					
Storage	1x SATA 6 Gbps port/ 1x M.2 SATA 6 Gbps port, M key 2280/ 1x Micro SD card eMMC 5.0, Up to 64GB (Optional)					
External I/O						
Ethernet	2x GbE (Standard: Intel® I211-AT, Option: Intel® I210IT), RJ-45, WOL					
Serial Port	2x RS-232/422/485 programmable, support 9 bit mode and auto flow					
USB 2.0	1x USB 2.0, Type A, OCP, 1000mA					
USB 3.0	1x USB 3.0, Type A, OCP, 1600mA					
DP	1x DP, DP++, supports resolutions up to 4096 x 2160					
Internal I/O						
Mini PCIe	1x full size mPCIe, integrated PCIe and USB interface, supports full/half size					
PCIe	1x PCIe4 edge connector on PCB					
DisplayPort	1x DP, DP++, supports resolutions up to 4096 x 2160					
USIM	1x SIM slot for 3G/4G communication					
USB 2.0	1x wafer for USB 2.0 client					
I²C	2x wafers for I²C clients					
Audio	1x wafer for 2x 2W stereo speaker, built-in amplifier 1x wafer for Mic-in and Line-out 1x wafer for buzzer					
Keys	1 box header for 33 physical keys (Optional) 1 wafer, supports LCD backlight up/down, volume up/down (Optional)					
GPIO	1 x wafer, supports 8-pin GPIO/O					
Power						
Connector	1x 4-pin power connector					
DC Input	12VDC standard, optional 9 to 36VDC					
Power/Fail Reset	1x wafer for power and reset button					
Notification						
Thermal Sensors	2x PCBA top & bottom-mounted thermal sensors					
TPM	TPM 2.0 (Optional)					
LED Indicator	1x wafer for 10 LED indicators (4x COM port Tx/Rx, 1x Watch Dog Timer, 3x user defined)					
Debug Port	1x 40-pin multipurpose flat cable connector for use in combination with DB-40 debug port					
Mechanical Bracket						
IP Grade	IP65 for front					
Material	SGCC					
Display and Touch						
	7"	10.1"	12.1"	15.6"	18.5"	21.5"
Display Ratio	16:9 / 16:10					
Display Resolution	1024 x 600	1280 x 800		1366 x 768		1920 x 1080
Display View Angle	75/75/70/75	85/85/85/85	89/89/89/89	85/85/85/85	85/85/80/80	60/60/70/70
Luminance (Nits)	250 cd/m^2	400 nits (typ)			450 nits (typ)	500 nits (typ)
Capcitive Touch	5 points capacitive touch screen or 1 point 5-wire resistive touch screen, full-flat					
Environmental						
Operating Temp.	-20 to 60°C		-20 to 70°C	0 to 50°C		
Storage Temp.	-20 to 70°C	-20 to 70°C	-20 to 70°C			
Operating Humidity	10-90% RH operating, non-condensing, 5-95% RH storage					
Vibration	OP 5 Grms, 5-500Hz (with SDD), EN61373 Class 1B (Railway Reliability), ISO 7637-2					
Shock	OP 100G peak acceleration, 6 ms (With SSD), EN61373 Class 1B (Railway Reliability)					
ESD	Air: ±15kV, Contact: ±8kV					
Software						
SEMA	SEMA 3.5					
WDT	Watch Dog Timer supported					
Operating System	Windows® 10 IOT Enterprise x64 bit, Linux Ubuntu 16.04 LTS, QT compatible, 64 bit					

WORLDWIDE OFFICES

ADLINK Technology, Inc.

9F, No.166 Jian Yi Road, Zhonghe District
New Taipei City 235, Taiwan
新北市中和區建一路166號9樓
Tel: +886-2-8226-5877
Fax: +886-2-8226-5717
Email: service@adlinktech.com

Ampro ADLINK Technology, Inc.

5215 Hellyer Avenue, #110 San Jose, CA 95138, USA
Tel: +1-408-360-0200
Toll Free: +1-800-966-5200 (USA only)
Fax: +1-408-360-0222
Email: info@adlinktech.com

ADLINK Technology Singapore Pte, Ltd.

84 Genting Lane #07-02A, Axxel Innovation Centre,
Singapore 349584
Tel: +65-6844-2261
Fax: +65-6844-2263
Email: singapore@adlinktech.com

ADLINK Technology Singapore Pte. Ltd. (Indian Liaison Office)

#50-56, First Floor, Spearhead Towers
Margosa Main Road (between 16th/17th Cross)
Malleswaram, Bangalore - 560 055, India
Tel: +91-80-65605817, +91-80-42246107
Fax: +91-80-23464606
Email: india@adlinktech.com

ADLINK Technology Japan Corporation

〒101-0045 東京都千代田区神田鍛冶町3-7-4
ユニゾ神田鍛冶町三丁目ビル4F
Unizo Kanda Kaji-cho 3 Chome Bldg. 4F,
3-7-4 Kanda Kajicho, Chiyoda-ku, Tokyo 101-0045, Japan
Tel: +81-3-4455-3722
Fax: +81-3-5209-6013
Email: japan@adlinktech.com

ADLINK Technology, Inc. (Korean Liaison Office)

경기도 용인시 수지구 신수로 767 A동 1008호
(동천동, 분당수지유타워) (우) 16827
A-1008, U-TOWER, 767 Sinsu-ro, Suji-gu, Yongin-si,
Gyeonggi-do, Republic of Korea, 16827
Toll Free: +82-80-800-0585
Tel: +82-31-786-0585
Fax: +82-31-786-0583
Email: korea@adlinktech.com

ADLINK Technology (China) Co., Ltd.

上海市浦东新区张江高科技园区芳春路300号 (201203)
300 Fang Chun Rd., Zhangjiang Hi-Tech Park
Pudong New Area, Shanghai, 201203 China
Tel: +86-21-5132-8988
Fax: +86-21-5192-3588
Email: market@adlinktech.com

ADLINK Technology Beijing

北京市海淀区上地东路1号盈创动力大厦E座801室(100085)
Rm. 801, Power Creative E, No. 1 Shang Di East Rd.
Beijing, 100085 China
Tel: +86-10-5885-8666
Fax: +86-10-5885-8626
Email: market@adlinktech.com

ADLINK Technology Shenzhen

深圳市南山区科技园南区高新南七道数字技术园
A1栋2楼C区 (518057)
2F, C Block, Bldg. A1, Cyber-Tech Zone, Gao Xin Ave. Sec. 7
High-Tech Industrial Park S., Shenzhen, 518054 China
Tel: +86-755-2643-4858
Fax: +86-755-2664-6353
Email: market@adlinktech.com

ADLINK Technology GmbH

Hans-Thoma-Strasse 11, D-68163
Mannheim, Germany
Tel: +49 621 43214-0
Fax: +49 621 43214-30
(Deggendorf) Ulrichsbergerstrasse 17, 94469
Deggendorf, Germany
Tel: +49 (0) 991 290 94-10
Tel: +49 (0) 991 290 94-29
Email: emea@adlinktech.com

ADLINK Technology, Inc. (French Liaison Office)

6 allée de Londres, Immeuble Ceylan 91940
Les Ulis, France
Tel: +33 (0) 1 60 12 35 66
Fax: +33 (0) 1 60 12 35 66
Email: france@adlinktech.com

ADLINK Technology, Inc. (UK Liaison Office)

First Floor West Exeter House, Chichester Fields
Business Park Tangmere, West Sussex,
PO20 2FU, United Kingdom
Tel: +44-1243-859677
Email: UK@adlinktech.com

ADLINK Technology, Inc. (Israel Liaison Office)

SPACES OXYGEN, 62 Medinat, Ha-yehudim st
4673300, Herzliya, Israel, P.O.Box - 12960
Tel: +972-54-632-5251
Fax: +972-77-208-0230
Email: israel@adlinktech.com

