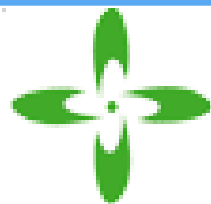


# 4-bit MCU Chipset solution

&

# USB series Chipset solution



tenx technology inc.



棋港电子有限公司  
KEI KONG ELECTRONICS LTD



# 4-bit MCU Integrated Solution



# 4-bit MCU Chipset Solution

# 4-bit MCU

Integrated Solution

## TM87 series

P/N	CLOCK	OPERATING VOLTAGE	Max LCD	ROM	RAM	Dedicate I/O	INT PIN	DEBOUNCE/Wake up	RFC	EL	KEY SCAN	PRE-DIVIDER	TIMER	Tone	HALT	STOP	WDT	RESET
TM8721	SINGLE	1.5V	4*9	1024*16	64*4	7	--	A PORT	--	--	--	V	1	V	V	V	--	V
TM8720	SINGLE	1.5V	4*12	1024*16	64*4	7	--	A PORT	--	--	--	V	1	V	V	V	--	V
TM8724	DUAL	1.5 / 3.0 V	5*24	1152*16	80*4	--	V	C PORT	--	--	--	V	1	--	V	V	--	V
TM8723	DUAL	1.5 / 3.0 / 5.0	5*27	1536*16	96*4	--	V	C PORT	--	V	V	V	1	V	V	V	V	V
TM8722	DUAL	1.5 / 3.0 / 5.0	5*35	2048*16	128*4	--	V	C PORT	V	V	V	V	2	V	V	V	V	V
TM8725	DUAL	1.5 / 3.0 / 5.0	6*40	3072*16	384*4	--	V	C,D PORT	V	V	V	V	2	V	V	V	V	V
TM8726	DUAL	1.5 / 3.0 / 5.0	9*41	4096*16	512*4	--	V	C,D PORT	V	V	V	V	2	V	V	V	V	V
TM8727	DUAL	1.5 / 3.0 / 5.0	9*41	12288*16	1024*4	--	V	C,D PORT	V	V	V	V	2	V	V	V	V	V
TM8795 (CIP)	DUAL	3.0 / 5.0	9*41	4096*16	1024*4	--	V	A,C,D PORT	V	V	V	V	2	V	V	V	V	V
TM87P08 (CIP)	DUAL	3.0 / 5.0	8*32	4096*16	256*4	10	V	C,D PORT	V	--	V	V	2	V	V	V	V	V
TM87R08	DUAL	3.0 / 5.0	8*32	4096*16	256*4	10	V	C,D PORT	V	--	V	V	2	V	V	V	V	V
TM87P04 (CIP)	DUAL	3.0 / 5.0	4*32	8192*8	128*4	9	V	C PORT	--	--	--	V	2	V	V	V	V	V
TM87R04	DUAL	3.0 / 5.0	4*32	8192*8	128*4	9	V	C PORT	--	--	--	V	2	V	V	V	V	V

## TM89 series

P/N	CLOCK	OPERATING VOLTAGE	Max LCD	ROM	RAM	Dedicate I/O+ RFC	INT PIN	DEBOUNCE/Wake up	RFC	EL	KEY SCAN	PRE-DIVIDER	TIMER1	Tone	HALT	STOP	WDT	RESET
TM89P59 (CIP)	DUAL	1.5 / 3.0	16*64	32k*16	6k*4	28	V	A,C,D PORT	2 set	V	V	V	3	V	V	V	V	V
TM8959	DUAL	1.5 / 3.0	16*64	32k*16	6k*4	28	V	A,C,D PORT	2 set	V	V	V	3	V	V	V	V	V
TM89P55 (CIP)	DUAL	1.5 / 3.0	16*60 or 12*64	16k*16	4k*4	8	V	A,C,D PORT	2 set	V	V	V	3	V	V	V	V	V
TM8955	DUAL	1.5 / 3.0	16*60 or 12*64	16k*16	4k*4	8	V	A,C,D PORT	2 set	V	V	V	3	V	V	V	V	V
TM89P52 (CIP)	DUAL	1.5 / 3.0	16*52 or 12*56	16k*16	1.25k*4	4	V	A,C,D PORT	1 set	V	V	V	3	V	V	V	V	V
TM8952	DUAL	1.5 / 3.0	16*52 or 12*56	16k*16	1.25k*4	4	V	A,C,D PORT	1 set	V	V	V	3	V	V	V	V	V
TM8951	DUAL	1.5 / 3.0	9*48	8k*16	960*4	4	V	A,C,D PORT	1 set	V	V	V	3	V	V	V	V	V

## ADC series

P/N	OPERATING VOLTAGE	ADC RESOLUTION	OPAMP	INPUT CHANNEL	INTERFACE	CONVERSION TIME
TM87A12	2.2~5	12bit	4	8	3-wire	44.5uS
TM87A04	2.2~5	12bit	nil	8	3-wire	44.5uS



Stand along writer



TM87 ICE Board  
TICE87NB



TM89 ICE Board  
TICE89



十速科技股份有限公司  
tenx technology inc.

<http://www.tenx.com.tw>



**USB series**  
**Chipset Solution**



2	-----	USB Full / Low Speed General Purpose Integrated Solution
3	-----	USB Full Speed Security key Integrated Solution
4	-----	USB Full Speed uGame Integrated Solution
5	-----	USB Full Speed uGame Integrated Solution
6	-----	USB Full Speed Digital Photo Frame Integrated Solution
7	-----	USB Full Speed AniBrowser Integrated Solution
8	-----	USB Full Speed Digital Photo CAM Integrated Solution
9	-----	USB Full Speed USB Radio Integrated Solution
10	-----	USB Full Speed Audio Integrated Solution
11	-----	USB Full Speed Audio Integrated Solution
12	-----	USB Full Speed USB Phone Integrated Solution
13	-----	USB Development Tools

# USB

## Full / Low Speed

### General Purpose Integrated Solution

#### USB Low Speed General Purpose

P/N Package	CPU	X'tal	ROM	RAM	EP	GPIO	
TMU3100 <i>Dice/SSOP48/SOP20</i>	RISC	6MHz	OTP 8K*14	192 *8	3	GPIO/6, I/8,O/20	Product
TMU3100MS <i>Dice/SSOP48/SOP20</i>	RISC	6MHz	Mask 8K*14	192 *8	3	GPIO/6, I/8,O/20	Product
TMU3101 <i>Dice/PDIP/SOP-18/20/24</i>	RISC	6MHz	OTP 8K*14	192 *8	2	GPIO/14	Product
TMU3101MS <i>Dice/PDIP/SOP-18/20/24</i>	RISC	6MHz	Mask 4K*14	192 *8	2	GPIO/14	Product
TMU3102 <i>Dice/PDIP/SOP-18/20/24</i>	RISC	Build -in	OTP 8K*14	192 *8	2	GPIO/14	Product
TMU3102MS <i>Dice/PDIP/SOP-18/20/24</i>	RISC	Build -in	Mask 4K*14	192 *8	2	GPIO/14	Product

#### USB Full Speed General Purpose

P/N Package	CPU	X'tal	ROM	RAM	EP	GPIO	
TMU3110MS <i>Dice/LQFP-48</i>	8051	12MHz	Mask 16K*8	256 *8	3	GPIO/24	Product
TMU3111 <i>Dice/LQFP-48/64</i>	8051	6MHz /32KHz	OTP 32K*8	256 *8	4	GPIO/50 ADC10bit	Product
TMU3112 <i>Dice/LQFP-48/64</i>	8051	24MHz /32KHz	OTP 16K*8	256 *8	6	GPIO/42	Product
TMU3112MS <i>Dice/LQFP-48</i>	8051	24MHz /32KHz	Mask 16K*8	256 *8	6	GPIO/42	Product
TMU3113 <i>Dice/LQFP-48</i>	8051	6MHz /32KHz	OTP 24K*8	256 *8	4	GPIO/36	Product
TMU3120 <i>Dice/SSOP48/SOP20</i>	RISC	6MHz /Int RC	OTP 6K*14	160+ 64*2	5	GPIO/16	Develop
TMU3121 <i>Dice/SOP-18/20/24</i>	RISC	6MHz /Int RC	OTP 6K*14	160+ 64*2	5	GPIO/36	Develop
TMU3122 <i>Dice/LQFP-48/64</i>	RISC	6MHz /Int RC	OTP 12K*16	160+ 64*2	5	GPIO/40 ADC10bit	Develop



Full Speed

# USB

Security key Integrated Solution

## USB Security key

Product Name	Janus Lock Pro	Janus Lock	Janus Lock fit
Based on Smart card	Yes	Yes	No Used EEPROM
Encryption /Decryption	AES 256 Bits Triple-DES	AES 256 Bits	
Proprietary query-response algorithm	Yes	Yes	No
Algorithm factor Length	128 Bits	64 Bits	32 Bits
Large amount of User memory	16K bytes	Up to 4K Bytes	2K Bytes
Very flexible configuration of user memory	Yes	Yes	Yes
Setup passwords for different operation on data cell	Yes	Yes	Yes
Flexible License Model	Yes	Yes	Yes
API Framework	Yes	Yes	Yes
One time upgrade license	Yes	Yes	Yes
Executable Packer	Yes	Yes	Yes
Timer Gate	Yes	Yes	Yes

## USB Web key

P/N	Function	Package
TP9803	USB Full Speed Mass storage Device For Windows / MAC OS With Auto-run system	LQFP-48
TP6612	USB Low Speed HID Device For Windows / MAC OS With AniBrowser system	SOP-18

# USB

Full Speed



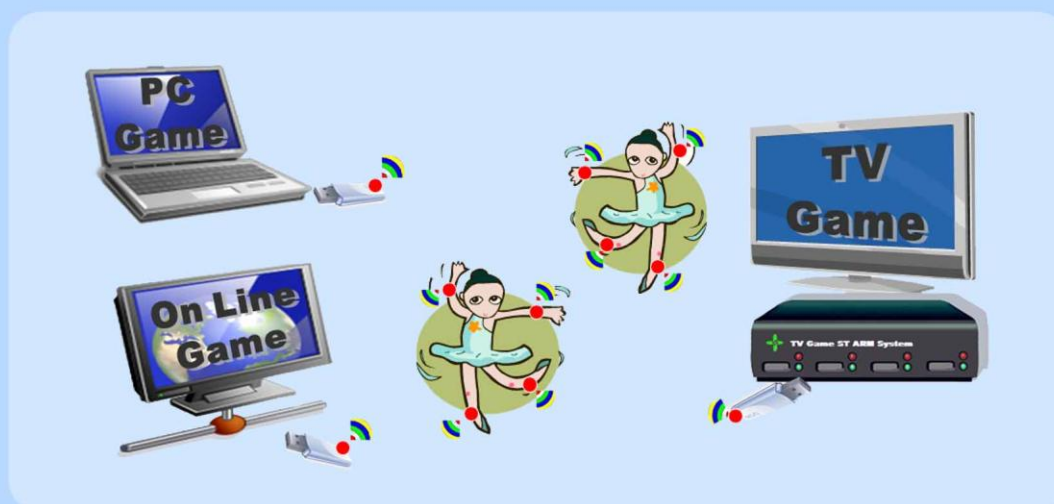
## uGame Integrated Solution

### USB Game Pad

P/N	Function	Package
SC9158	USB Game Pad Controller	SSOP48
TP6609	USB Mouse Controller With G-Sensor for Mouse application	SSOP24
TP6805	USB 4-in-1 Game Pad Controller Auto-run Game Program Solution	LQFP48
TP6809	USB 4-in-1 Game Pad Controller Auto-run Game Program Solution G-Sensor for Joystick application	LQFP48

### USB wireless Game Pad

P/N	Function	Package
TP6823	USB 4-in-1 Game Pad Controller Auto-run Game Program Solution G-Sensor for Joystick application RF 2.4G communication 1 to 8 device	LQFP48
TP6825	USB 4-in-1 Game Pad Controller Auto-run Game Program Solution G-Sensor for Joystick application RF 2.4G communication 1 to 8 device	LQFP48







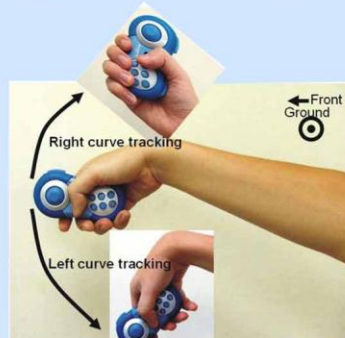
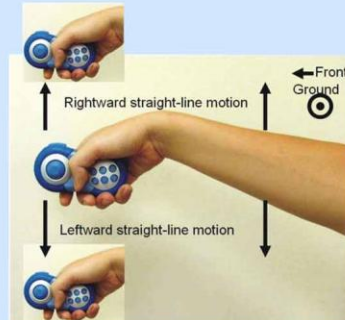
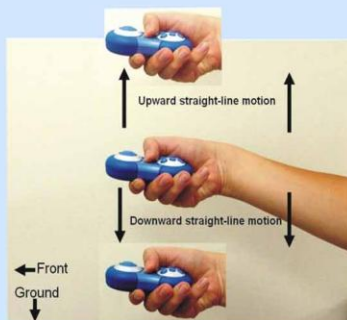
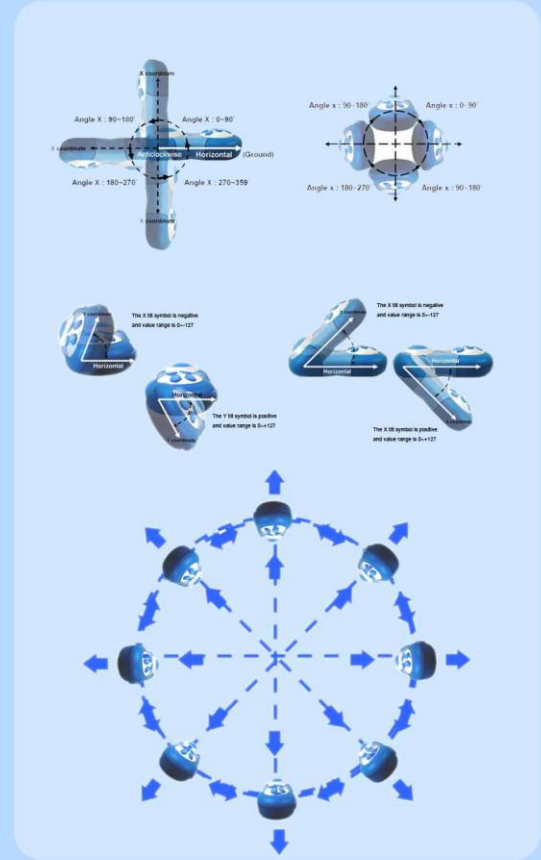
Full Speed

USB

uGame Integrated Solution

Tenx motion algorithm

- Tilt motion
- Swing motion
- Hook motion
- Uppercut motion
- Straight motion
- Defend motion
- Free fall detect
- Angle detect
- Left and Right curve tracking
- Up and Down curve tracking
- Forward and Backward Straight -line motions
- Leftward and Rightward Straight -line motions
- Upward and Downward Straight -line motions
- Upper-right and Bottom-left Straight -line motions
- Upper-left and Bottom-right Straight -line motions
- Right front and Left back Straight -line motions
- Right back and Left front Straight -line motions



# USB

Full Speed

## Digital Photo Frame Integrated Solution



### USB Digital Photo Frame

P/N	Function	Package
TP6801	USB Digital Photo Frame for 1" ~ 1.8" Color LCD Auto-run Application Program	LQFP48
TP6806	USB Digital Photo Frame for 1" ~ 1.8" Color LCD Auto-run Application Program Dual OS - Integrated Windows and Mac	LQFP48
TP6820	USB Digital Photo Frame for 2.0" ~ 3.2" Color LCD Auto-run Application Program Dual OS - Integrated Windows and Mac Speech output and Microphone in	LQFP48

### USB Web Photo Frame

P/N	Function	Package
TP6826	USB Web Browser Photo Frame for 2.0"~3.2" LCD Auto-run Application Program and Dual OS - Integrated for Window IE Browser and Mac Safari Browser AniBrowser tenx system server	LQFP48





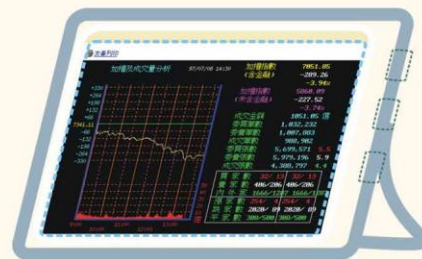
Full Speed

USB

AniBrowser Integrated Solution

USB Web Browser

P/N	Function	Package
TP6610	USB Web Weather forecast LCD Display 1000 dots AniBrowser tenx system server RF 2.4 G solution	SSOP24
TP6611	USB Web Stock Browser LCD Display 1000 dots AniBrowser tenx system server RF 2.4 G solution	SSOP24 LQFP48
TP6826	USB Web Browser USB Web Weather forecast USB Web Stock Browser USB Web Photo Frame AniBrowser tenx system server	



# USB

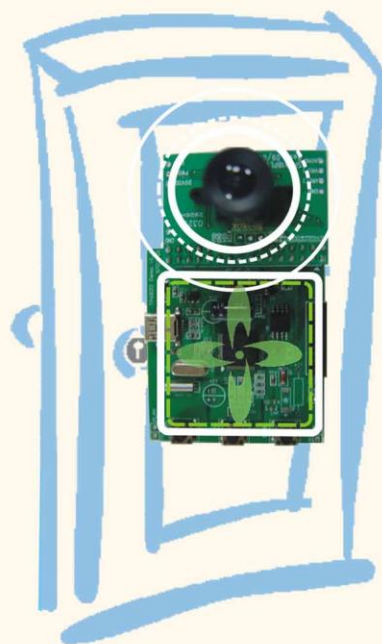
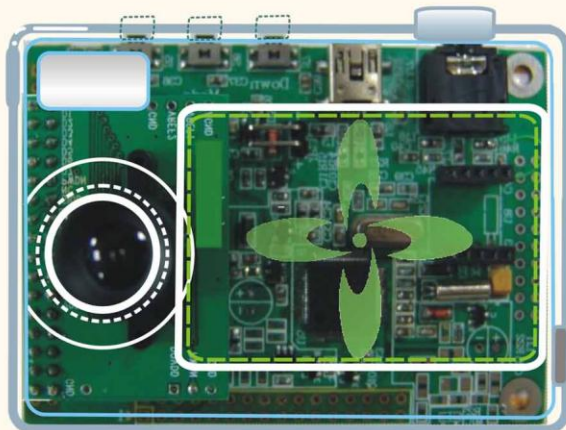
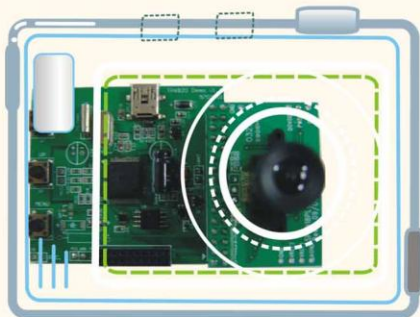
Full Speed

## Digital Photo CAM Integrated Solution



### USB Digital Photo CAM

P/N	Function	Package
TP6811	USB Digital Photo CAM for 1" ~ 1.8" Color LCD Auto-run Application Program	LQFP48
TP6812	USB Digital Doorbell Monitor for 1" ~ 1.8" Color LCD Auto-run Application Program	LQFP48
TP6822	USB Digital Photo CAM for 2.0" ~ 3.2" Color LCD Auto-run Application Program Dual OS - Integrated Windows and Mac Speech output	LQFP48





FM / Web Radio

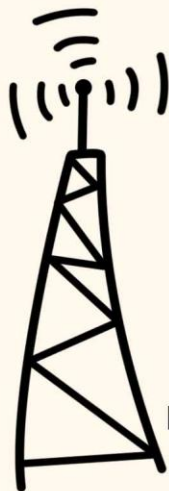
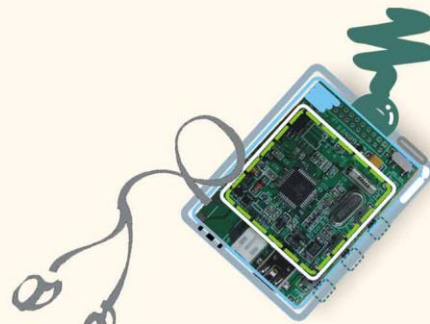
Full Speed

# USB

## USB Radio Integrated Solution

### USB Web Radio

P/N	Function	Package
TP6803	FM Radio with USB Digital Photo Frame for 1" ~ 1.5" Color LCD Auto select channel and save 6 channel	LQFP48
TP6810	FM Radio with USB Web Radio Auto select channel and save 6 channel AniBrowser tenx system server	
TP6828	USB Web Radio Auto-run Application Program AniBrowser tenx system server	LQFP48



**FM Radio**



# USB

## Full Speed

### Audio Integrated Solution

#### USB Speaker

P/N	Function	Package	Output	X'tal	Status
TP6902	VR,3-Keys for Volume control	HSOP28	1200mw (Max.)	24MHz	Product
TP6905	IR Remote for Media 64Keys	HSOP28	1200mw (Max.)	24MHz	Product
TP6906	Web Radio Vol. up, Vol. Down, Mute Radio CH up, CH down IR Remote with 64Keys	HSOP28	1200mw (Max.)	24MHz	Product

#### USB Audio with MIC

P/N	Function	Package	Output	X'tal	Status
TP6910	USB Phone with LCD 9*41 Dots	LQFP48	1200mw (Max.)	12MHz	Product
TP6911	USB Phone USB Speaker USB Earphone	LQFP48 HSOP28	1200mw (Max.)	12MHz	Product
TP6914	USB Phone with LCM 128*128	LQFP48	1200mw (Max.)	12MHz	Product
TP6915	USB Phone with 144-KeyBoard	LQFP80	1200mw (Max.)	12MHz	Product
TP6916	USB Phone with USB Mouse	LQFP48	1200mw (Max.)	12MHz	Product
TP6917	USB Speaker With Web Radio 1.44 Color Display	LQFP48	1200mw (Max.)	12MHz	Product
TP6918	USB Messaging Notifier for MSN QQ,Skype,E-mail	LQFP48	1200mw (Max.)	12MHz	Product

#### USB Audio General Purpose IC

P/N	CPU	X'tal	OTP	RAM	EP	GPIO	Interface	Status
TMU6102	8051	12MHz	16K	256*8	5	38	SPI,144-Keys scan	Product



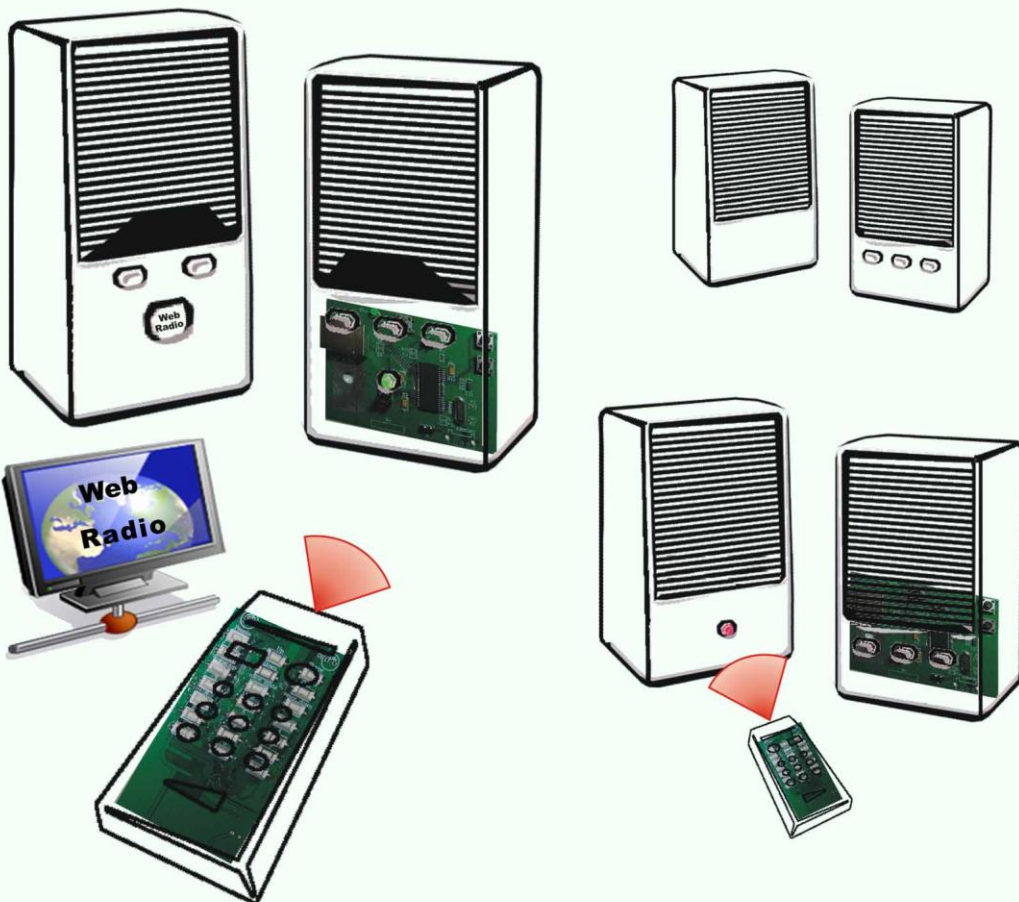
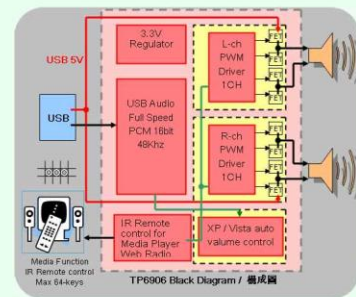
Full Speed

# USB

## Audio Integrated Solution

### USB Speaker

P/N	Function
TP6902	USB Speaker VR, 3-Keys for Volume control
TP6905	USB Speaker VR, 3-Keys IR Remote control with Media 64Keys
TP6906	USB Web Radio Speaker, Volume up, Volume down, Mute Radio Chanel up, Chanel down IR Remote control with 64Keys



# USB

Full Speed

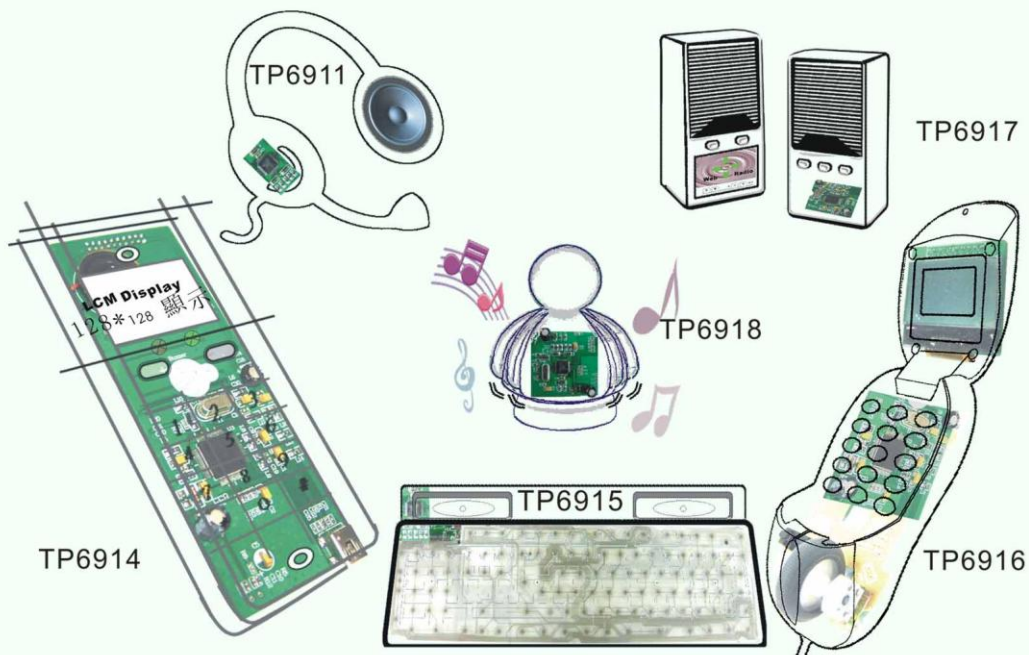
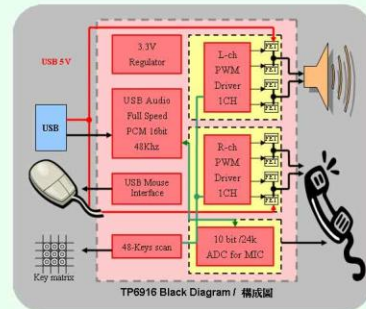
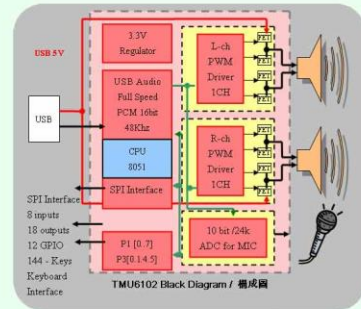
## USB Phone Integrated Solution



TP6910

### USB Phone

P/N	Function
TP6910	USB Phone with 32-keys LCD 9*41 Dots Display
TP6911	USB Phone with 32-keys USB Speaker/Earphone with Microphone
TP6914	USB Phone with 32-keys LCM 128*128 Dots Display
TP6915	USB Phone with 144-Keys For USB Keyboard function
TP6916	USB Phone with 7-keys For USB Mouse function
TP6917	USB Speaker with Web Radio And 1.44 Color Display
TP6918	USB Messaging Notifier for MSN,QQ,Skype,E-mail



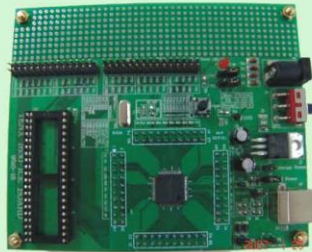




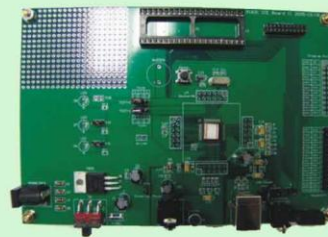
TICE6820 ICE Board /  
TICE6826 ICE Board



TICE66  
TMU310/1/2 ICE Board



TICE3112 ICE Board



TICE6102 ICE Board



TICE6823 ICE Board /  
TICE6825 ICE Board



TWR93X  
Stand alone Writer



TICE6801 ICE Board /  
TICE6806 ICE Board



TWR68M8  
Stand alone Writer

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棋港电子有限公司香港总公司

联系人: 罗达深

E-mail: [samson@keikong.com](mailto:samson@keikong.com)

地址: 香港九龙新界沙田小沥源安心街19号汇贸中心9楼907-911室

电话: (852) 2715 0738(15线) 传真: (852) 2715 1337



深圳办事处

电话: (0755) 83281338, 83281003 传真: (0755) 83281001

E-mail: [boyce@keikong.com](mailto:boyce@keikong.com)

广州办事处

电话: (020) 38852127, 38852968 传真: (020) 38852297

E-mail: [yuliang@keikong.com](mailto:yuliang@keikong.com)

厦门办事处

电话: (0592) 3806901 传真: (0592) 3806909

E-mail: [jim@keikong.com](mailto:jim@keikong.com)

上海办事处

电话: (021) 51695122, 63541141, 63541142

传真: (021) 63536038

E-mail: [jeff@kkongsh.com](mailto:jeff@kkongsh.com)

北京办事处

电话: (010) 88377105, 88377016, 88377019, 88377031

传真: (010) 68358255

E-mail: [steven.jiao@keikongbj.com](mailto:steven.jiao@keikongbj.com)

南京办事处

电话: (025) 84702292, 84725755, 84713781, 84717036

传真: (025) 84718031

E-mail: [jeff@kkongsh.com](mailto:jeff@kkongsh.com)

武汉办事处

电话: (027) 87538867 传真: (027) 87538861

E-mail: [peter@keikong.com](mailto:peter@keikong.com)

青岛联络处

电话: 13780649903

E-mail: [john.yang@keikongbj.com](mailto:john.yang@keikongbj.com)