

MCU Programming Tools

The following gives details behind the range of programming equipment available to program the full range of Holtek Microcontroller based devices.

HT-IDE3000 Development Environment

The **HT-IDE3000** is a fully integrated development system designed around the Holtek range of microcontrollers. Working in conjunction with the HT-ICE hardware emulator, the HT-IDE3000 system provides a user friendly workbench to ease the process of application program development, by integrating all of the software tools, such as editor, cross assembler, linker, library and symbolic debuggers. More detailed information on the HT-IDE3000 development system is contained within the **HT-IDE3000 User's Guide**. Installed in conjunction with the HT-IDE3000 and to ensure that the development system contains information on new microcontrollers and software updates, Holtek provides regular **HT-IDE3000 Service Packs**. These Service Packs do not replace the HT-IDE3000 but are installed after the HT-IDE3000 system software has been installed.

HT-ICE — Holtek In-Circuit Emulator

Developed alongside the Holtek 8-bit microcontroller device range, the Holtek ICE is a fully functional in-circuit emulator for Holtek's 8-bit microcontroller devices. Incorporated within the system are a comprehensive set of hardware and software tools for rapid and easy development of user applications. Central to the system is the in-circuit hardware emulator, capable of emulating all of Holtek's 8-bit devices in real-time, while also providing a range of powerful debugging and trace facilities. Regarding software functions, the system incorporates a user-friendly windows based workbench which integrates together functions such as program editor, cross assembler, linker and library manager. In addition, the system is capable of running in software simulation mode without connection to the HT-ICE hardware.

HT-ICE — Holtek In-Circuit Emulator			
Product Code	IC Type	IC Part No.	Product Contents
TICE48C-CCF	Cost-Effective I/O Type	HT48R05A-1, HT48C05, HT48R06A-1, HT48C06	HT-ICE, CD, 4 Flat Cables, Power Adapter, Power Cord, Printer Cable, Interface Cards (TPCB48MIO-A-1)
	I/O Type	HT48R10A-1, HT48C10-1, HT48R30A-1, HT48C30-1, HT48R50A-1, HT48C50-1, HT48R70A-1, HT48C70-1	
	Remote Type	HT48RA0A, HT48CA0, HT48RA3, HT48CA3, HT48CA6	
TICE49C-CCAA	LCD Type	HT49R30A-1, HT49C30-1, HT49C30L, HT49R50A-1, HT49C50-1, HT49C50L, HT49R70A-1, HT49C70-1, HT49C70L	HT-ICE, CD, 2 Flat Cables, Power Adapter, Power Cord, Printer Cable, Interface Card (TPCB49C00-A-1)
TICE47C-CCDA	R-F Type	HT47C20, HT47C20L, HT47R20	HT-ICE, CD, Flat Cable, Power Adapter, Power Cord, Printer Cable, Interface Card (TPCB47C00-A-1), 2 Test Keys (RFADOSC-1, RFADOSC-2)
TICE47C100000A		HT47C10L	HT-ICE, CD, Flat Cable, Power Adapter, Power Cord, Printer Cable, Interface Card (TPCB47C100000A), Test Key (HTK025)
TICE46SER0000A	A/D Type	HT46R22, HT46C22, HT46R23, HT46C23, HT46R47, HT46C47	HT-ICE, CD, 5 Flat Cables, Power Adapter, Power Cord, Printer Cable, Interface Card (TPCB46SER0000A)
	A/D with LCD Type	HT46R63, HT46C63	
TICE95-CCFX	Phone Controller Type	HT95A200, HT95A20P, HT95A300, HT95A30P, HT95L100, HT95L10P, HT95L200, HT95L20P, HT95L300, HT95L30P, HT95C200, HT95C20P, HT95C300, HT95C30P	HT-ICE, CD, 3 Flat Cables, Power Adapter, Power cord, Printer Cable, Interface Card (TPCB95XXX-A-1)
TICEG2190-CCAA	Dot Matrix LCD Type	HTG2130, HTG2150, HTG2160, HTG2190	HT-ICE, CD, 2 Flat Cables, Power Adapter, Power Cord, Printer Cable, Interface Card (TPCBG2190-A)
TICE9X80-CCF	Pager Controller	HT9480	HT-ICE, CD, 2 Flat Cables, Power Adapter, Power Cord, Printer Cable, Interface Card (TPCB00001)
TICE86-CCFX	Voice Synthesizer	HT86072, HT86144, HT86192, HT86384	HT-ICE, CD, Flat Cable, Power Adapter, Power cord, Printer Cable, Interface Card (TPCB86SER0000A)
TICE82K680000A	Keyboard/Mouse Type	HT82K68E, HT82K68A	HT-ICE, CD, Flat Cable, Power Adapter, Power cord, Printer Cable, Interface Card (TPCB82K680000A)
TICE82K960000A		HT82K96E, HT82K96A	HT-ICE, CD, Flat Cable, Power Adapter, Power cord, Printer Cable, Interface Card (TPCB82K960000A)

HT-ICE Interface Card

The interface cards supplied with the HT-ICE can be used for most applications, however it is possible for the user to omit the supplied interface card and design their own interface card. By including the necessary interface circuitry on their own interface card the user has a means of directly connecting their target boards to the CN1 and CN2 connectors of the HT-ICE.

The following list gives the information to enable the correct flat cable connection between the range of microcontroller packages and the appropriate interface card and socket.

HT-ICE Interface Card		
Product Code	Supported IC	HT-ICE Type No.
TPCB00001(I/O)	HT9480	TICE9480-CCF
TPCB48MIO-A-1	HT48R05A-1, HT48C05, HT48R06A-1, HT48C06, HT48R10A-1, HT48C10-1, HT48RA0A, HT48CA0, HT48R30A-1, HT48C30-1, HT48R50A-1, HT48C50-1, HT48R70A-1, HT48C70-1, HT48RA3, HT48CA3, HT48CA6	TICE48C-CCF
TPCB49C00-A-1	HT49R30A-1, HT49C30-1, HT49C30L, HT49R50A-1, HT49C50-1, HT49C50L, HT49R70A-1, HT49C70-1, HT49C70L	TICE49C-CCAA
TPCB47C00-A-1	HT47R20, HT47C20, HT47C20L	TICE47C-CCDA
TPCB47C100000A	HT47C10L	TICE47C100000A
TPCB46SER0000A	HT46R22, HT46C22, HT46R23, HT46C23, HT46R47, HT46C47, HT46R63, HT46C63	TICE46SER0000A
TPCB95XXX-A-1	HT95A200, HT95A20P, HT95A300, HT95A30P, HT95L100, HT95L10P, HT95L200, HT95L20P, HT95L300, HT95L30P, HT95C200, HT95C20P, HT95C300, HT95C30P	TICE95-CCFX
TPCBG2190-A	HTG2130, HTG2150, HTG2160, HTG2190	TICEG2190-CCAA
TPCB86SER0000A	HT86072, HT86144, HT86192, HT86384	TICE86-CCFX
TPCB82K680000A	HT82K68E, HT82K68A	TICE82K680000A
TPCB82K960000A	HT82K96E, HT82K96A	TICE82K960000A

OTP Programmer

The Holtek HandyWriter programming tool is supplied to enable efficient programming of OTP devices for engineering and low volume applications, while for programmable voice devices the Voice HandyWriter is available. The HandyWriter is able to run either by connecting to the PC through its printer port or to the HT-ICE directly without the printer port connection, however it is not able to run in stand alone mode. Please note if the device to be programmed does not fit the on board Textool, an extra Adapter Card is needed to accommodate the device package form. Related information is listed as follows.

OTP Programmer			
Product Code	IC Type	IC Part No.	Product Contents
THANDYOTP-F	Cost-Effective I/O Type	HT48R05A-1, HT48R06A-1	HandyWriter (with 40pin DIP textool, no LCM), CD, Power Adapter, Printer Cable, no stand-alone function
	I/O Type	HT48R10A-1, HT48R30A-1, HT48R50A-1, HT48R70A-1	
	LCD Type	HT49R30A-1, HT49R50A-1, HT49R70A-1	
	A/D Type	HT46R22, HT46R23, HT46R47	
	A/D with LCD Type	HT46R63	
	R-F Type	HT47R20	
	Remote Type	HT48RA0A, HT48RA3	
	Phone Controller Type	HT95A20P, HT95A30P, HT95L10P, HT95L20P, HT95L30P, HT95C20P, HT95C30P	
HANDY81R03-B	EasyVoice™	Keyboard/Mouse Type	HT82K68E, HT82K96E
			HT81R03
			HandyWriter (no textool, no LCM, no VME connector), CD, EasyVoice™ Adapter, Power Adapter, Printer Cable, no stand-alone function

OTP Adapter Card

The Holtek OTP programmers are supplied with a standard Textool chip socket. The OTP Adapter Card is used to connect the Holtek OTP programmers to the various sizes of available OTP chip packages that are unable to use this supplied socket. The following table will enable the user to select the required adapter card for their various applications.

OTP Adapter Card		
Product Code	IC Part No.	Product Contents
TSOP2DIP28	All except HT48RA0A	OTP adapter for OTP chips with SOP package, 28pin and below
TNSSOP2DIP28	HT48R05A-1, HT48R06A-1	OTP adapter for SSOP package, 28pin
TADP48R50ASO48	HT48R50A-1, HT48R70A-1, HT82K68E	OTP adapter for HT48R50A-1, HT48R70A-1, HT82K68E 48SSOP package
TADP48R70AQF64	HT48R70A-1	OTP adapter for HT48R70A-1 64QFP package
T49XSOP48	HT49R30A-1, HT49R50A-1	OTP adapter with a 48SSOP textool
T49R50QFP100-B	HT49R50A-1, HT49R70A-1	OTP adapter with a 100pin QFP textool
TADP46R63QF100	HT46R63	OTP adapter for HT46R63 100QFP package
T47R20QFP64	HT47R20	OTP adapter for HT47R20 64QFP package
T48RA0DIPSOP-A	HT48RA0A	OTP adapter with a DIP textool and a SOP textool
TADP95AX0PSS48	HT95A20P, HT95A30P	OTP adapter for HT95A20P, HT95A30P 48SSOP package
TADP95L10PQF64	HT95L10P	OTP adapter for HT95L10P 64QFP package
TADP95LX0PQF100	HT95L20P, HT95L30P	OTP adapter for HT95L20P, HT95L30P 100QFP package
TADP95CX0PQF128	HT95C20P, HT95C30P	OTP adapter for HT95C20P, HT95C30P 128QFP package
TADP82K96DIP20	HT82K96E	OTP adapter for HT82K96E 20DIP package
TADP82K96SOP20	HT82K96E	OTP adapter for HT82K96E 20SOP package
TADP82K96SOP28	HT82K96E	OTP adapter for HT82K96E 28SOP package
TADP82K96DIP40	HT82K96E	OTP adapter for HT82K96E 40DIP package
TADP82K96SS48	HT82K96E	OTP adapter for HT82K96E 48SSOP package

MCU Tools Indexing Table

By referring to the applicable Holtek microcontroller part number, this table provides users with a means to quickly locate the relevant development tools and OTP programming tools required. Included in the table are also the supported OTP programming tools from HI-LO SYSTEMS INC. In instances where tools are not listed for specific devices, this infers that such tools are not required.

MCU Tools Indexing Table					
IC Part No.	Package Type	HT-ICE	I/O Interface Card	OTP Writer (& Adapter)	Hi-Lo Writer (& Adapter)
Cost-Effective I/O Type MCU Series					
HT48R05A-1 HT48C05	16SSOP	TICE48C-CCF	TPCB48MIO-A-1	THANDYOTP-F (TNSSOP2DIP28)	TOTP201H2DIP40 (TNSSOP2DIP28)
					TOTP204DIP (TNSSOP2DIP28)
					TOTP208DIP (TNSSOP2DIP28)
	18DIP	TICE48C-CCF	TPCB48MIO-A-1	THANDYOTP-F	TOTP201H2DIP40
					TOTP204DIP
					TOTP208DIP
	18SOP	TICE48C-CCF	TPCB48MIO-A-1	THANDYOTP-F (TSOP2DIP28)	TOTP201H2SOP28
					TOTP204SOP
					TOTP208SOP
HT48R06A-1 HT48C06	16SSOP	TICE48C-CCF	TPCB48MIO-A-1	THANDYOTP-F (TNSSOP2DIP28)	TOTP201H2DIP40 (TNSSOP2DIP28)
					TOTP204DIP (TNSSOP2DIP28)
					TOTP208DIP (TNSSOP2DIP28)
	18DIP	TICE48C-CCF	TPCB48MIO-A-1	THANDYOTP-F	TOTP201H2DIP40
					TOTP204DIP
					TOTP208DIP
	18SOP	TICE48C-CCF	TPCB48MIO-A-1	THANDYOTP-F (TSOP2DIP28)	TOTP201H2SOP28
					TOTP204SOP
					TOTP208SOP
I/O Type MCU Series					
HT48R10A-1 HT48C10-1	24SKDIP	TICE48C-CCF	TPCB48MIO-A-1	THANDYOTP-F	TOTP201H2DIP40
					TOTP204DIP
	TOTP208DIP				
24SOP	TICE48C-CCF	TPCB48MIO-A-1	THANDYOTP-F (TSOP2DIP28)	TOTP201H2SOP28	
				TOTP204SOP	
				TOTP208SOP	
HT48R30A-1 HT48C30-1	24/28SKDIP	TICE48C-CCF	TPCB48MIO-A-1	THANDYOTP-F	TOTP201H2DIP40
					TOTP204DIP
	TOTP208DIP				
	24/28SOP	TICE48C-CCF	TPCB48MIO-A-1	THANDYOTP-F (TSOP2DIP28)	TOTP201H2SOP28
TOTP204SOP					
TOTP208SOP					
HT48R50A-1 HT48C50-1	28SKDIP	TICE48C-CCF	TPCB48MIO-A-1	THANDYOTP-F	TOTP201H2DIP40
					TOTP204DIP
					TOTP208DIP
	28SOP	TICE48C-CCF	TPCB48MIO-A-1	THANDYOTP-F (TSOP2DIP28)	TOTP201H2SOP28
					TOTP204SOP
					TOTP208SOP
48SSOP	TICE48C-CCF	TPCB48MIO-A-1	THANDYOTP-F (TADP48R50ASO48)	TOTP201H2SSP48	
				TOTP204H2SSP48	
				TOTP208H2SSP48	
HT48R70A-1 HT48C70-1	48SSOP	TICE48C-CCF	TPCB48MIO-A-1	THANDYOTP-F (TADP48R50ASO48)	TOTP201H2SSP48
					TOTP204H2SSP48
					TOTP208H2SSP48
	64QFP	TICE48C-CCF	TPCB48MIO-A-1	THANDYOTP-F (TADP48R70AQF64)	TPRO201H58AQF64
					TPRO204H58AQF64
TPRO208H58AQF64					

MCU Tools Indexing Table					
IC Part No.	Package Type	HT-ICE	I/O Interface Card	OTP Writer (& Adapter)	Hi-Lo Writer (& Adapter)
LCD Type MCU Series					
HT49R30A-1 HT49C30-1 HT49C30L	48SSOP	TICE49C-CCAA	TPCB49C00-A-1	THANDYOTP-F (T49RXSOP48)	TOTP201H2SSP48
					TOTP204H2SSP48
					TOTP208H2SSP48
HT49R50A-1 HT49C50-1 HT49C50L	48SSOP	TICE49C-CCAA	TPCB49C00-A-1	THANDYOTP-F (T49RXSOP48)	TOTP201H2SSP48
					TOTP204H2SSP48
					TOTP208H2SSP48
	100QFP	TICE49C-CCAA	TPCB49C00-A-1	THANDYOTP-F (T49R50QFP100-B)	TOTP201H2QP100
					TOTP204H2QP100
					TOTP208H2QP100
HT49R70A-1 HT49C70-1 HT49C70L	100QFP	TICE49C-CCAA	TPCB49C00-A-1	THANDYOTP-F (T49R50QFP100-B)	TOTP201H2QP100
					TOTP204H2QP100
					TOTP208H2QP100
					TPRO201H58AQF10
					TPRO204H58AQF10
					TPRO208H58AQF10
A/D Type MCU Series					
HT46R22 HT46C22	24SKDIP	TICE46SER0000A	TPCB46SER0000A	THANDYOTP-F	TOTP201H2DIP40
					TOTP204DIP
	24SOP	TICE46SER0000A	TPCB46SER0000A	THANDYOTP-F (TSOP2DIP28)	TOTP208DIP
					TOTP201H2SOP28
HT46R23 HT46C23	24/28SKDIP	TICE46SER0000A	TPCB46SER0000A	THANDYOTP-F	TOTP204SOP
					TOTP208SOP
					TOTP201H2DIP40
	24/28SOP	TICE46SER0000A	TPCB46SER0000A	THANDYOTP-F (TSOP2DIP28)	TOTP204DIP
					TOTP208DIP
					TOTP201H2SOP28
HT46R47 HT46C47	18DIP	TICE46SER0000A	TPCB46SER0000A	THANDYOTP-F	TOTP204SOP
					TOTP208SOP
					TOTP201H2DIP40
	18SOP	TICE46SER0000A	TPCB46SER0000A	THANDYOTP-F (TSOP2DIP28)	TOTP204DIP
					TOTP208DIP
					TOTP201H2SOP28
HT46R63 HT46C63	100QFP	TICE46SER0000A	TPCB46SER0000A	THANDYOTP-F (TADP46R63QF100)	TOTP204SOP
					TOTP208SOP
					TOTP201H2QP100
					TOTP204H2QP100
					TOTP208H2QP100
					TPRO201H58AQF10
A/D with LCD Type MCU Series					
HT46R63 HT46C63	100QFP	TICE46SER0000A	TPCB46SER0000A	THANDYOTP-F (TADP46R63QF100)	TPRO204H58AQF10
					TPRO208H58AQF10
					TPRO201H58AQF10
					TPRO204H58AQF10
					TPRO208H58AQF10
					TPRO208H58AQF10
R-F Type MCU Series					
HT47R20 HT47C20 HT47C20L	64QFP	TICE47C-CCDA	TPCB47C20-A	THANDYOTP-F (T47R20QFP64)	TPRO201H58AQF64
					TPRO204H58AQF64
					TPRO208H58AQF64
HT47C10L	44LQFP	TICE47C100000A	TPCB47C100000A	—	—

MCU Tools Indexing Table					
IC Part No.	Package Type	HT-ICE	I/O Interface Card	OTP Writer (& Adapter)	Hi-Lo Writer (& Adapter)
Remote Type MCU Series					
HT48RA0A HT48CA0	20/24SOP	TICE48C-CCF	TPCB48MIO-A-1	THANDYOTP-F (T48RA0DIPSOP-A)	TOTP201H2DIP40 (T48RA0DIPSOP-A)
					TOTP204DIP (T48RA0DIPSOP-A)
					TOTP208DIP (T48RA0DIPSOP-A)
HT48RA3 HT48CA3	28SKDIP	TICE48C-CCF	TPCB48MIO-A-1	THANDYOTP-F	TOTP201H2DIP40
					TOTP204DIP
					TOTP208DIP
	28SOP	TICE48C-CCF	TPCB48MIO-A-1	THANDYOTP-F (TSOP2DIP28)	TOTP201H2SOP28
					TOTP204SOP
					TOTP208SOP
					TPRO201H58AS028
					TPRO204H58AS028
					TPRO208H58AS028
HT48CA6	20/24SOP	TICE48C-CCF	TPCB48MIO-A-1	—	—
Phone Controller MCU Series					
HT95A200 HT95A300	48SSOP	TICE95-CCFX	TPCB95XXX-A-1	—	—
HT95A20P HT95A30P	48SSOP	TICE95-CCFX	TPCB95XXX-A-1	THANDYOTP-F (TADP95AX0PSS48)	TPRO201H58ASS56
					TPRO204H58ASS56
					TPRO208H58ASS56
HT95L100 HT95L10P	64QFP	TICE95-CCFX	TPCB95XXX-A-1	THANDYOTP-F (TADP95L10PQF64)	TPRO201H58AQF64
					TPRO204H58AQF64
					TPRO208H58AQF64
HT95L200 HT95L300	100QFP	TICE95-CCFX	TPCB95XXX-A-1	—	—
HT95L20P HT95L30P	100QFP	TICE95-CCFX	TPCB95XXX-A-1	THANDYOTP-F (TADP95LX0PQF100)	TPRO201H58AQF10
					TPRO204H58AQF10
					TPRO208H58AQF10
HT95C200 HT95C300	128QFP	TICE95-CCFX	TPCB95XXX-A-1	—	—
HT95C20P HT95C30P	128QFP	TICE95-CCFX	TPCB95XXX-A-1	THANDYOTP-F (TADP95CX0PQF128)	TPRO201H58AQF12
					TPRO204H58AQF12
					TPRO208H58AQF12
Dot Matrix LCD MCU Series					
HTG2130	100QFP	TICEG2190-CCAA	TPCBG2190-A	—	—
HTG2150	100QFP	TICEG2190-CCAA	TPCBG2190-A	—	—
HTG2160	100QFP	TICEG2190-CCAA	TPCBG2190-A	—	—
HTG2190	128QFP	TICEG2190-CCAA	TPCBG2190-A	—	—
Voice Synthesizer MCU Series					
HT86072 HT86144 HT86192 HT86384	—	TICE86-CCFX	TPCB86SER0000A	—	—
Keyboard/Mouse MCU Series					
HT82K68E HT82K68A	20/28SOP	TICE82K680000A	TPCB82K680000A	THANDYOTP-F (TSOP2DIP28)	TOTP201H2SOP28
					TOTP204SOP
					TOTP208SOP
	40DIP	TICE82K680000A	TPCB82K680000A	THANDYOTP-F	TOTP201H2DIP40
					TOTP204DIP
					TOTP208DIP
	48SSOP	TICE82K680000A	TPCB82K680000A	THANDYOTP-F (TADP48R50ASO48)	TOTP201H2SSP48
					TOTP204H2SSP48
					TOTP208H2SSP48
HT82K96E HT82K96A	20DIP	TICE82K960000A	TPCB82K960000A	THANDYOTP-F (TADP82K96DIP20)	—
	20SOP	TICE82K960000A	TPCB82K960000A	THANDYOTP-F (TADP82K96SOP20)	—
	28SOP	TICE82K960000A	TPCB82K960000A	THANDYOTP-F (TADP82K96SOP28)	—
	40DIP	TICE82K960000A	TPCB82K960000A	THANDYOTP-F (TADP82K96DIP40)	—
	48SSOP	TICE82K960000A	TPCB82K960000A	THANDYOTP-F (TADP82K96SS48)	—