



# CPLDs (Complex Programmable Logic Devices)

Atmel offers a broad range of high-density, low-power, and cost-effective solutions enabling designers to create products that are "just what the market ordered." Based on a standard architecture, which uses industry standard development tools, Atmel's CPLDs offer the unique low-power or "L" feature while providing 100% connectivity. These devices are processed with Atmel's proprietary 0.65-micron processes and have a EEPROM memory. The ATF750/C CPLDs are based on a 22V10-type architecture and

provide market-leading capacity and flexibility in a 22V10 footprint with twice the registers and additional features for better logic utilization.

The ATF1500 Series is targeted at wider logic density, with higher number of I/O's. This family has devices from 44 - 160 pins, and 32 - 96 I/O's. High connectivity, and flexible architecture make these parts highly suitable for system design. In system programmability in the larger devices allow for reconfiguration even after the device is in the system.

### Standard Development Tools:

Atmel's philosophy is that designers should be able to use known development tools. Third-party design tools such as Synario™, ABEL™, CUPL™, PPLDesigner-XL™, LOGiC™, and PLDSyn™ support Atmel's EPLDs. Also Atmel-specific versions of the popular Synario, ABEL, and CUPL design tools are offered. In addition, workstation support is available on popular platforms with Viewlogic, MINC, Cadence, Mentor, and Synopsys.

Voltage	ISP	Tpd (ns)	Registers	Macro-cells	Usable Gates	Power Option	Package Type	Digi-Key Part No.	1	Price Each 25	100	Atmel Part No.
<b>ATF750 Series</b>												
5.0	No	7.5	20	10	500	Standard	28-PLCC	ATF750C-7JC-ND	5.85	4.22	3.95	ATF750C-7JC
							24-DIP	ATF750C-7PC-ND	6.45	4.64	4.35	ATF750C-7PC
							24-SOIC	ATF750C-7SC-ND	5.85	4.22	3.95	ATF750C-7SC
5.0	No	10	20	10	500	Standard	28-PLCC	ATF750C-10JU-ND	4.68	3.38	3.16	ATF750C-10JU
							24-DIP	ATF750C-10PU-ND	4.68	3.38	3.16	ATF750C-10PU
							24-SOIC	ATF750C-10SC-ND	4.68	3.38	3.16	ATF750C-10SC
5.0	No	15	20	10	750	Standard	28-PLCC	ATF750C-15JC-ND	3.28	2.37	2.22	ATF750C-15JC
							24-DIP	ATF750C-15PC-ND	3.61	2.60	2.44	ATF750C-15PC
							24-SOIC	ATF750C-15SC-ND	3.28	2.37	2.22	ATF750C-15SC
5.0	No	15	20	10	750	Low	28-PLCC	ATF750CL-15JC-ND	3.28	2.37	2.22	ATF750CL-15JC
							24-DIP	ATF750CL-15PC-ND	3.61	2.60	2.44	ATF750CL-15PC
							24-SOIC	ATF750CL-15SC-ND	3.28	2.37	2.22	ATF750CL-15SC
3 - 3.6	No	15	20	10	500	Standard	28-PLCC	ATF750LVC-15JC-ND	3.28	2.37	2.22	ATF750LVC-15JC
							24-DIP	ATF750LVC-15PC-ND	3.61	2.60	2.44	ATF750LVC-15PC
							24-SOIC	ATF750LVC-15SC-ND	3.61	2.60	2.44	ATF750LVC-15SC
							24-TSSOP	ATF750LVC-15XU-ND	3.28	2.37	2.22	ATF750LVC-15XU
<b>ATF1500 Series</b>												
5.0	No	10	32	32	1500	Standard	44-TQFP	ATF1500A-10AU-ND	2.95	2.12	1.98	ATF1500A-10AU
							44-PLCC	ATF1500A-10JU-ND	2.95	2.12	1.98	ATF1500A-10JU
5.0	No	20	32	32	1000	Low	44-TQFP	ATF1500AL-20AU-ND	3.08	2.20	2.07	ATF1500AL-20AU
							44-PLCC	ATF1500AL-20JU-ND	3.08	2.20	2.07	ATF1500AL-20JU
5.0	Yes	10	32	32	750	Standard	44-PLCC	ATF1502AS-10JU44-ND	2.54	1.72	1.48	ATF1502AS-10JU44
							44-TQFP	ATF1502AS-10AU44-ND	2.54	1.72	1.48	ATF1502AS-10AU44
5.0	Yes	25	32	32	750	Low	44-TQFP	ATF1502ASL-25AU44-ND	2.54	1.95	1.72	ATF1502ASL-25AU44
							44-PLCC	ATF1502ASL-25JU44-ND	2.54	1.95	1.72	ATF1502ASL-25JU44
3 - 3.6	Yes	15	—	—	—	Standard	44-TQFP	ATF1502ASV-15AU44-ND	2.05	1.38	1.20	ATF1502ASV-15AU44
							44-PLCC	ATF1502ASV-15JU44-ND	2.05	1.38	1.20	ATF1502ASV-15JU44
3 - 3.6	Yes	20	32	32	750	Standard	44-TQFP	ATF1502ASV-20AC44-ND	1.53	1.04	0.90	ATF1502ASV-20AC44
							44-PLCC	ATF1502ASV-20AC100-ND	1.53	1.04	0.90	ATF1502ASV-20AC100
1.8	Yes	7	32	32	750	Ultra Low	44-TQFP	ATF1502BE-7AU44-ND	1.64	1.07	1.02	ATF1502BE-7AU44
							44-PLCC	ATF1502BE-7JU44-ND	1.64	1.07	1.02	ATF1502BE-7JU44
5.0	Yes	10	64	64	1500	Standard	44-PLCC	ATF1504AS-10JC44-ND	3.50	2.35	2.04	ATF1504AS-10JC44
							44-TQFP	ATF1504AS-10AU44-ND	4.23	2.86	2.47	ATF1504AS-10AU44
							84-PLCC	ATF1504AS-10JC84-ND	4.45	3.00	2.59	ATF1504AS-10JC84
5.0	Yes	20	64	64	1500	Low	100-TQFP	ATF1504AS-10AU100-ND	4.95	3.80	3.34	ATF1504AS-10AU100
							44-TQFP	ATF1504ASL-20AC44-ND	3.35	2.26	1.95	ATF1504ASL-20AC44
							100-TQFP	ATF1504ASL-20AC100-ND	4.14	2.79	2.41	ATF1504ASL-20AC100
5.0	Yes	25	64	64	1500	Low	44-TQFP	ATF1504ASL-25AU44-ND	4.90	3.31	2.85	ATF1504ASL-25AU44
							44-PLCC	ATF1504ASL-25JU44-ND	5.02	3.40	2.93	ATF1504ASL-25JU44
							100-TQFP	ATF1504ASL-25AU100-ND	5.63	3.80	3.28	ATF1504ASL-25AU100
3 - 3.6	Yes	15	64	64	1500	Standard	44-TQFP	ATF1504ASV-15AU44-ND	3.35	2.19	1.96	ATF1504ASV-15AU44
							44-PLCC	ATF1504ASV-15JC44-ND	2.61	1.70	1.52	ATF1504ASV-15JC44
							44-PLCC	ATF1504ASV-15JU44-ND	3.28	2.14	1.91	ATF1504ASV-15JU44
3 - 3.6	Yes	20	64	64	1500	Low	100-TQFP	ATF1504ASV-15AU100-ND	4.53	2.95	2.64	ATF1504ASV-15AU100
							44-TQFP	ATF1504ASV-20AU44-ND	3.59	2.34	2.10	ATF1504ASV-20AU44
							44-PLCC	ATF1504ASV-20JU44-ND	3.51	2.29	2.05	ATF1504ASV-20JU44
3 - 3.6	Yes	20	64	64	1500	Low	100-TQFP	ATF1504ASV-20AU100-ND	4.84	3.16	2.82	ATF1504ASV-20AU100
							44-PLCC	ATF1504ASV-20JU100-ND	3.51	2.29	2.05	ATF1504ASV-20JU100
5.0	Yes	7.5	128	128	3000	Standard	100-TQFP	ATF1508AS-7AC100-ND	12.30	8.30	6.87	ATF1508AS-7AC100
							84-PLCC	ATF1508AS-10JU84-ND	10.66	7.19	5.95	ATF1508AS-10JU84
5.0	Yes	10	128	128	3000	Standard	100-TQFP	ATF1508AS-10AU100-ND	13.21	8.91	7.38	ATF1508AS-10AU100
							100-PQFP	ATF1508AS-10QU100-ND	18.46	12.46	10.31	ATF1508AS-10QU100
							84-PLCC	ATF1508ASL-20JC84-ND	6.95	4.69	3.88	ATF1508ASL-20JC84
5.0	Yes	20	128	128	3000	Low	100-TQFP	ATF1508ASL-20AC100-ND	8.68	5.86	4.85	ATF1508ASL-20AC100
							84-PLCC	ATF1508ASL-25JU84-ND	9.18	6.19	5.12	ATF1508ASL-25JU84
							100-TQFP	ATF1508ASL-25AU100-ND	11.38	7.67	6.35	ATF1508ASL-25AU100
3 - 3.6	Yes	15	128	128	3000	Standard	84-PLCC	ATF1508ASV-15JU84-ND	3.51	2.37	2.18	ATF1508ASV-15JU84
							100-TQFP	ATF1508ASV-15AU100-ND	3.91	2.64	2.28	ATF1508ASV-15AU100
3 - 3.6	Yes	20	128	128	3000	Low	100-TQFP	ATF1508ASV-20AU100-ND	4.06	2.74	2.36	ATF1508ASV-20AU100
							84-PLCC	ATF1508ASV-20JU84-ND	3.67	2.48	2.14	ATF1508ASV-20JU84
<b>ATF2500 Series</b>												
5.0	No	15	48	24	1500	Standard	44-PLCC	ATF2500C-15JU-ND	6.15	4.72	4.15	ATF2500C-15JU
							44-PLCC	ATF2500C-20JC-ND	4.15	3.19	2.81	ATF2500C-20JC
							40-DIP	ATF2500C-20PU-ND	5.48	4.22	3.70	ATF2500C-20PU

◆ RoHS Compliant

## ATF15xx-DK3 CPLD Development Kit

The Atmel CPLD Development/Programmer Kit is a complete development system and an In-System programmer for the ATF15xx family of industry standard pin compatible Complex Programmable Logic Devices with Logic Doubling features. This kit provides designers a very quick and easy way to develop prototypes and evaluate new designs with an ATF15xx ISP CPLD. The ATF15xx family of ISP CPLDs includes the ATF15xxAS, ATF15xxASL, ATF15xxASV, ATF15xxASVL, and ATF15xxBE CPLDs. With the availability of the different Socket Adapter Boards to support all the package types offered in the ATF15xx family of ISP CPLDs, this CPLD Development/Programmer Board can be used as an ISP programmer to program the ATF15xx ISP CPLDs in all the available package types through the industry standard JTAG interface (IEEE 1149.1).

**CPLD Demo Board/Programmer Board:** • 84-lead PLCC Adapter • ISP (JAT) Port • Wire-wrap Terminal Holes-all Pins • 2 MHz Crystal Oscillator • Eight 8-segment LED Displays • 5V and 3.3V Vcc operation • Easy access to CPLD I/O pins • Global Clear, Output Enable and Power Switches **Logic Doubling™ CPLDs:** • ATF1508ASVL-20JC84 3.3V Low-power 128 Macrocell CPLD with ISP **CPLD Programmable Cable:** • 5V and 3.3V ISP cable for PC parallel port with Vcc Auto Detection **Software CD:** • Free Atmel-WinCUPL design software and User's Manual • 30-day Trial Version of Atmel-ProChip Designer™ software • Logic Doubling Support and Documentation • Logic Doubling Reference • Atmel Databook CD **Atmel-ProChip Designer:** **Design Entry:** • VHDL, Schematic, and CUPL • Synthesis • Functional Simulation • Atmel Proprietary Device Filters with Logic Doubling • Timing Simulation

ATF15XX-DK3-ND	CPLD Development Kit for ATF15XX	71.87
ATF15XXDK3-SAA100-ND	100-PLCC/TQFP Adapter Socket for ATF15XXB	98.01
ATF15XXDK3-SAJ44-ND	84/84 PLCC Adapter Socket for ATF15XXBE	25.41
ATF15XXDK3-SAJ84-ND	84/84 PLCC Adapter Socket for ATF15XXBE	36.30
ATDS1500PC-ND	4.0 Prochip Design Software	71.87
ATDS15XXKSW1-ND	5.0 Prochip Software License	71.87

## FPGA Configurator Programming Kit (Enhanced) ATDH2200E

Atmel offers a low cost development kit for the designer who wishes to begin working with the AT17 Series of ISP FPGA configuration memories. The kit allows designers to read, write and in-system program any of Atmel's AT17 series family members directly from a PC. All standard file input formats produced by the various FPGA vendors are supported. The AT17 series devices can be programmed directly on the programming board or the board can be used to facilitate in-system programming of the AT17 series devices in the target application (cable provided). The ATDH2200E supports all Atmel AT17 series configuration memories.

### FEATURES:

**Hardware:** • Supports Programming of all AT17C/LV Series Devices • Connection to Allow In-System Prog. (ISP) • 5.0V or 3.0V Supply **Software:** • CPS - Configurator Programming System • GUI-based Interface • Supports Win95/Win98/WinNT • Online Help • Supports Programming Reset Polarity • Verification Routines to Validate Programming • Accepts HEX, MCS, POF, RBF and BST File Formats • **System Contents:** • ATDH2200 Programming Board • ATDH2222 20-pin PLCC Adapter • CPS Software • ATDH2200E Datasheet • ATDH2200E Programming Kit User Guide • Standard (PC Printer Port) Parallel Cable • 10-pin Ribbon Cable for ISP • 9V DC, 200 mA, 2.1 mm Center Positive Power Supply • Sample AT17C/LV Devices

ATDH2200E-ND	FPGA Configurator Program Kit	108.17
ATDH2221-ND	20-SOIC Adapter	108.14
ATDH2222-ND	20-PLCC Adapter	111.04
ATDH2224-ND	44-TQFP Adapter	108.17
ATDH2225-ND	AT17 ISP Cable	68.97
ATDH2227-ND	44-PLCC Adapter	108.17
ATDH2227A-ND	44-PLCC Adapter	108.17
ATDH2228-ND	8-LAP Adapter	108.17

Free shipping on orders over £50! All prices are in British pound sterling and include duties.

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