# FLASH PSD

## MCU Peripherals

# What if you could...

**Speed up** design time by 2-3 weeks?

**Program** your entire system in only 7-seconds?

**Eliminate** 6-square inches of board space?

**Reduce** power consumption by 93%?

**Cure** assembly flow headaches with JTAG first-time programming?

**Remove** several dollars of manufacturing cost from each system?

# Well, now you can!

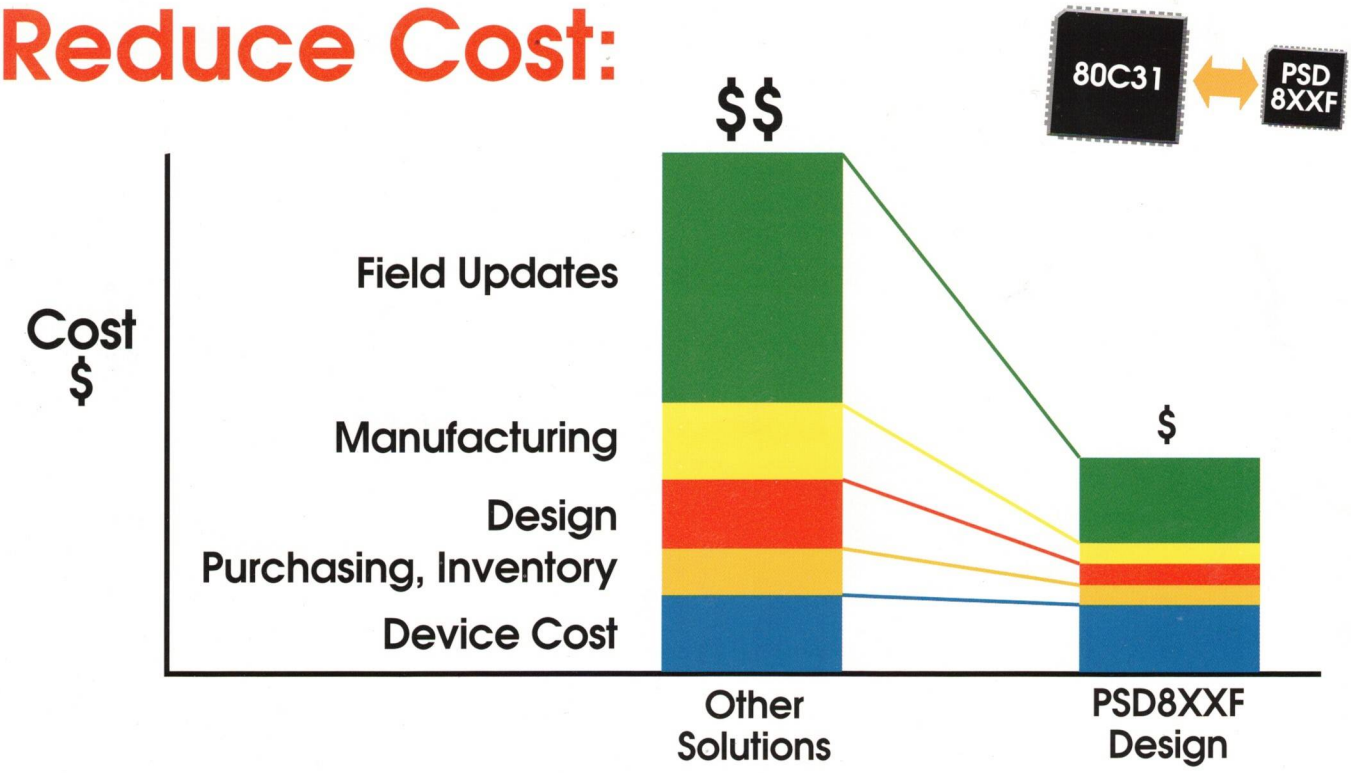

Introducing

# EasyFLASH™

# PSD8XXF: a broad family of Flash MCU peripherals

| Part | | Logic | | | | | I/O | Memory | | | | | Other | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | PLD inputs | | | | | | Flash Program Store | | | | | | | | |
| | | | Input Micro⇔ Cells | | | | | | 2nd Flash Boot | | | | J-TAG | | | |
| | | | | Output Micro⇔ Cells | | | | | | EEPROM/EEPROM boot | | | | ISP | | |
| | | | | | PLD outputs | | | | | | OTP EPROM boot | | | | Security | |
| PSD | ZPSD | | | | | Page Reg | Ports | | | | | SRAM | | | | PM |
| PSD813FH | | 63 | 23 | 12 | 12 | 4 | 19 | 1024Kb | | | 256Kb | 4Kb | | X | X | X |
| PSD813FN | | 63 | 23 | 12 | 12 | 4 | 19 | 1024Kb | | | 256Kb | 4Kb | | X | X | X |
| PSD813F1 | X | 73 | 24 | 16 | 19 | 8 | 27 | 1024Kb | | 256Kb | | 16Kb | X | X | X | X |
| PSD813F2 | X | 73 | 24 | 16 | 19 | 8 | 27 | 1024Kb | 256Kb | | | 16Kb | X | X | X | X |
| PSD813F3 | X | 73 | 24 | 16 | 19 | 8 | 27 | 1024Kb | | | | 16Kb | X | X | X | X |
| PSD813F4 | X | 73 | 24 | 16 | 19 | 8 | 27 | 1024Kb | 256Kb | | | | X | X | X | X |
| PSD813F5 | X | 73 | 24 | 16 | 19 | 8 | 27 | 1024Kb | | | | | X | X | X | X |

## Reduce Cost:




**The PSD8XXF** reduces cost in several areas. It can be used for first-time low-cost designs, mid-life product cost reduction, or operations expense reduction.

# Introducing FLASH PSD8X

**ZPLD Input Bus:**
73 input signals for great system flexibility and control.

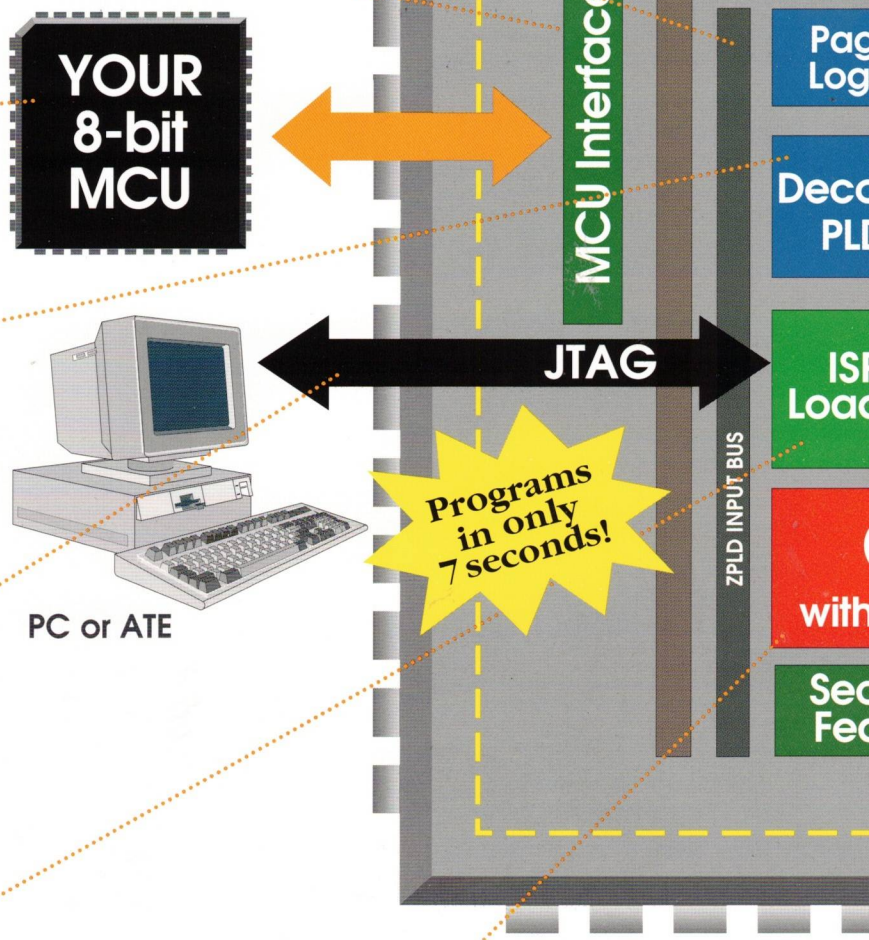
**MCU Interface:**
Programmable interface to most 8-bit MCUs from Intel, Philips, Motorola, Zilog, Hitachi, and others.

**Your 8-bit MCU:**
Use your low-cost, ROM-less 8-bit MCU with a Flash PSD8XXF and take advantage of the software you already have.

**Decode PLD:**
73 inputs; selects Flash, EEPROM, and SRAM sectors, JTAG and peripheral selects; performs complex mapping which enables non-stop operation during the Flash memory reprogramming cycle.

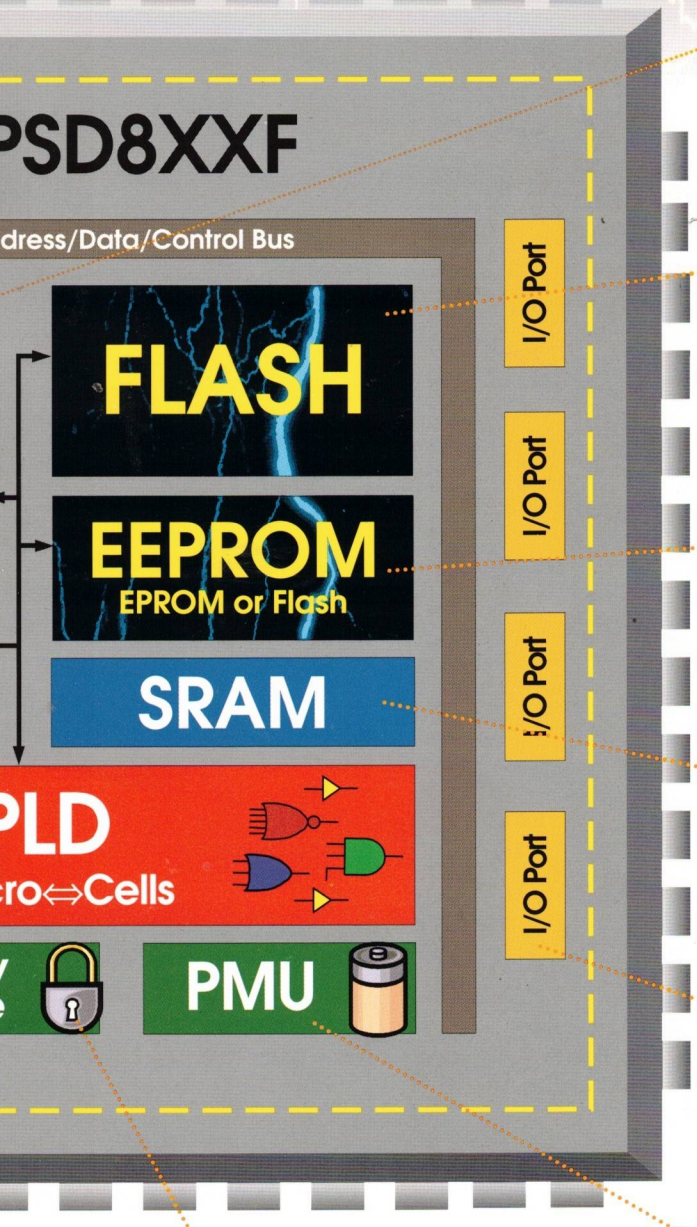
## JTAG Serial Programming:
Enables in-system first-time programming; on-board command processor achieves 600% programming speed increase over parallel programming; MCU can also parallel program the PSD8XXF memory.

## ISP Loader:
Self-contained JTAG command processor available at power-up; ultra-fast programming algorithm; state machine, data pipeline, etc. enables as fast as 7- second programming of the entire 100% ISP Flash PSD8XXF.




## CPLD:
3,000 gate equivalent; fast ISP programmable; direct R/W access between MCU and mapped Micro⇔Cells; 73 inputs, 16 output and 24 input Micro⇔Cells; use for dual processor interface, serial/parallel I/O, event counting, state machine, timing synchronization, etc.

# XF for MCUs




### Page Logic:
8-bit page register expands your MCU addressing range by 256 times. Great for extended mapping.

## Concurrent Flash:
5-volt only, 128K x 8; eight 16K-byte mappable sectors; sector erase and protection; fast Serial JTAG or parallel byte-by-byte programming.

### EEPROM (F1):
5-volt only, 32K x 8; four mappable 8K-byte sectors; use for variable data, constants, or boot code; byte programmable and erasable. This second array is also available as OTP EPROM (FH/FN) or Flash (F2).

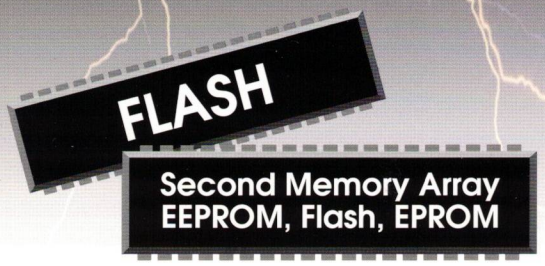
### Scratch-pad SRAM:
Battery backed, 2K x 8; automatic power switching when $V_{CC}$<Vstdby; 0.5 µA standby current.

### I/O Ports:
27 individually programmable I/O ports; replace lost I/O on your ROM-less MCU; unlimited possibilities when used with the CPLD.

## Zero-Power Unit:
Optimizes AC and DC power consumption; Zero-Power features provide automatic power down, standby (25µA typical), or sleep modes. Typical active power is only 1 mA/MHz (bus frequency)... just 7% of the power required by a discrete solution!

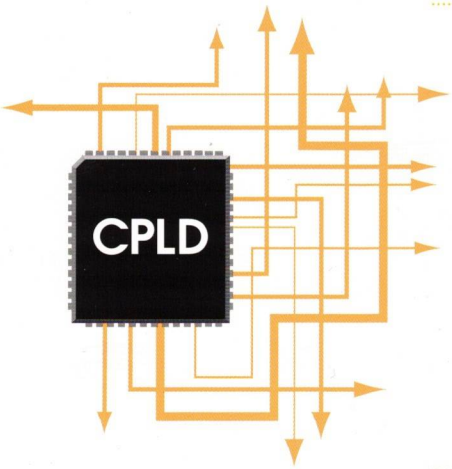
### Design Security:
Locks up your program code and configuration information from your competition.

# EasyFLASH™



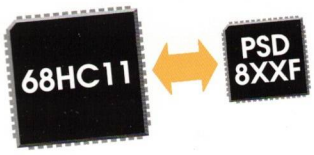

## Get non-stop concurrent operation with Flash and a second memory array

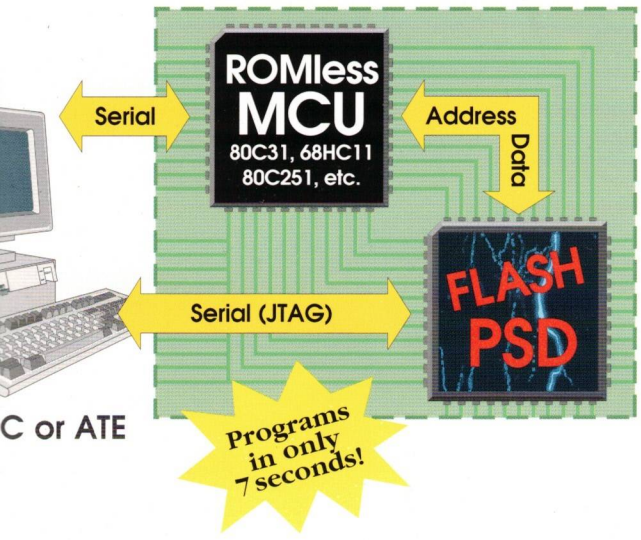
While the Flash memory is busy with Erase or Write functions, your MCU can execute code from the second memory array (EEPROM, Flash, or EPROM). This prevents risky SRAM operation, long MCU wait states, and system hang-ups.




## PSD8XXF automatically performs complex mapping

Flash program code must be remapped to data space when being updated. The MCU must operate from other program code during that time. Multiple product terms in the decode PLD, page logic, and run-time control registers permit dynamic remapping and non-stop MCU operation during Flash updating.




## 100% In-System Programmable... even the first time!

The PSD8XXF's on-board JTAG command interpreter is ready at power-up on a blank device. The Flash and EEPROM memory, decode PLD, CPLD, I/O, MCU interface, etc. are all serial JTAG programmable in as little as 7 seconds. No need for a ROMed MCU with boot-code or a separate device programmer. Get the WSI Flash Link serial programming accessory and program right from your PC.

## PSDsoft makes it easy

PSDsoft software tools make fast, easy work of configuring and programming PSD8XXF to try different logic designs and prototype iterations. These tools even create ANSI-C code for your MCU to access, control and reprogram the PSD8XXF. **We make it easy.**

## For more information

- Return the postage-paid card
- Visit www.wsipsd.com
- Email WSI: info@wsiusa.com
- Call WSI: 800-TEAM-WSI (832-6974)

Send in the card!


# All this on one chip... and JTAG In-System-Programmable, too!

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