

Watch Dog Timer

WDT

- Background timer that once enabled can independently reset the Microcontroller if it overflows
- Used to insure reliable operation
 - Processor program periodically clears the WDT as part of its normal operation flow
 - If for some reason the program fails to do so (either lock –ups or “crashes”) WDT will kick in to automatically reset the processor (equivalent of CTRL-ALT-DEL)
- Can be enabled/disabled as a fuse setting during configuration or controlled in software on/off
- For all our labs except this one it is disabled.

WDT Experiment

- Use software control to enable WDT
- The WDT will interrupt the normally counting and display operations of the program (LEDS 0-5), and will register its occurrence by lighting LED7

Exercise

1. Open wdt.mcp lab in Lesson WDT
2. Open and examine cWDT.c source, understand its operation and then comment out SWDTEN =1;
3. Use PICKIT2 debugger
4. Build, download, and execute
5. Note leds 0-5 increment and then wrap-around continuously
6. Stop execution
7. Uncomment SWDTEN =1 line, build, download, execute
8. What is happening?
 - Notice RD7 is lite after some finite time and stays lit
 - Notice the count never proceeds to termination
 - Why?