```
//*****************************************************************************
/// @file     main.c
/// @author   Jay Convertino (electrobs@gmail.com)
/// @brief    Military Time Clock program, a 24 hour clock.
/// @detail   This program uses ifs for its time keeping. This is done to reduce
///           the time needed to execute and instruction. Divides and by
///           extension mod, need many instruction cycles to complete.
///           Ifs and compares are usually faster but not as clean. For such
///           a low resource micro-controller a bit more code space was preferred
///           vs longer execution time. In addition, the decision to to have so
///           much code in the ISRs is ill-advised. In this case with careful
///           testing this operates well and doesn't present a problem.
//*****************************************************************************

/// @brief ATMEGA 89s51 specific header, has a 3rd timer.
#include <at89x51.h>
/// @brief standard int for uints
#include <stdint.h>

/// @def Timer 0 high reg for 12 MHz milliseconds count
#define TH0_START 0xFC
/// @def Timer 1 low reg for 12 MHz milliseconds count
#define TL0_START 0x18

/// @def Timer 1 high reg for 2 Hz clock divide by 2 for seconds.
#define TH1_START 0xFF
/// @def Timer 1 low reg for 2 Hz clock divide by 2 for seconds.
#define TL1_START 0xFE

/// @def ON is binary 1
#define ON  1
/// @def OFF is binary 0
#define OFF 0

/// @def binary position for one minutes segment transistor input.
#define SEG_ONE_MINUTE 1
/// @def binary position for ten minutes segment transistor input.
#define SEG_TEN_MINUTE 2
/// @def binary position for one hours segment transistor input.
#define SEG_ONE_HOUR   4
/// @def binary position for ten minutes segment transistor input.
#define SEG_TEN_HOUR   8

/// @def Clock DOT LED transistor input.
#define DOT_LED       P1_6
/// @def Clock display LED for alarm on/off transistor input.
#define ALARM_LED     P1_7

/// @def Switch alarm set location.
#define SET_A_SWITCH  P3_4
/// @def Switch time set location.
#define SET_T_SWITCH  P3_3
/// @def Switch Hour increment location.
#define HOUR_SWITCH   P3_0
/// @def Switch Minute increment location.
#define MINUTE_SWITCH P3_1
/// @def Switch alarm on/off location.
#define ALARM_SWITCH  P3_2

/// @def MIN_DELAY minimum delay for switch press.
```