System library for PIC18 processors
version 0.06

The library was prepared as a replacement of the official System library (__Lib_System.mcl) in mP PRO (or mB PRO). Not that there is something wrong with the System lib, but in certain situations one may need a different solution for indirect function calls.

There is just one public routine in official System library – the Swap function, which is naturally preserved. Added public routine, FSRcontext, should be called to force the compiler to add FSR registers to context saving/restoring in ISRs. This may prove necessary if one used FSR registers directly in Pascal (Basic) in both main code and ISR (or calls routines that do it). Naturally, one may perform the context saving by oneself, instead.

A version that, besides some marginal optimisation, behaves like the original library, but contains also the FSRcontext procedure and bool function that may be used for typecasting byte variable to boolean is called __Lib_System_mElike.mcl (requires name change with manual installation).

The second version of System lib replacement is aimed at demanding applications and for use by a bit more advanced programmers. Please do not replace the original library with it, if there is no real need.

Additional change introduced to this version of System lib concerns only indirect function calls, i.e. calls made using pointers. The original library uses Top Of Stack registers in such cases – which in turn requires blocking of interrupts for several assembly instructions. If this is undesirable, indirect function calls may be performed using PCLAT rather than TOS - and without the need to block interrupts. The only disadvantage is that if one also modifies Program Counter in ISRs, one should add PCLATH & PCLATU (if PCLATU<>0) to context saving.

Manual library installation:

 - find mP PRO installation directory and subdirectory **.../Uses/P18**,
 - find original library file, **__Lib_System.mcl**, there and rename it,
 - unpack the replacement lib and move the file to the **.../Uses/P18** directory,

Have fun,

janni

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date   12.04.11
Revision history:
> 0.01 - added FSRcontext
> 0.02 – added nil & pointer
> 0.03 – added abs function
> 0.04 – added bool function
> 0.05 – compiled with v4.80, abs moved to Math lib
> 0.06 – compiled with v5.00

Added declarations:

```
type  pointer=^byte;
const Lib_System_ver: string[4]
      hi_priority=$08;
      low_priority=$18;
```

Public library routines:

procedure FSRcontext;
 forces compiler into context saving of FSR registers

function Swap(arg:byte): byte;
 swaps nibbles of byte variable arg

function bool(arg:byte): boolean;
 converts to boolean assuming that any arg<>0 is TRUE