

PIC マイコンボード

PI CMB876

Catal ogue

Microchip の PIC マイコンを使用したシステムの評価・開発支援・ハード/ソフト実験及び組み込み用、教育用として設計されています。下記、特徴があるため PIC マイコンシステム開発にマザーボードとしての機能を併せ持っています。



詳細はホームページ <http://www5b.biglobe.ne.jp/~tekhanzo/>

をご確認ください。

テック・ハンゾウガネ

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特 徴

PIC マイコンボード(PICMB876)は PIC16F876 A/D10Bit(標準実装)
PIC16C773(A/D12Bit) ,PIC16F873 ,PIC16C73 ,PIC16C76 ,PIC16F73 ,PIC16F76,
PIC18F252, PIC18F258 他、28 ピン PIC マイコン全てに対応し、(28P-40PZIF アダプタで
PIC16F874,PIC16C774(A/D12Bit),PIC16F877,PIC16C74,PIC16C77,PIC16F74,PIC16F77
,PIC16C64, PIC18F452, PIC18F458 他、40 ピン PIC マイコン全てに対応)ボードサイズ(162
×150 内ユニバーサルエリア 150×35)で**評価・開発支援(ハード、ソフト)、機器組込用、教
育用、簡易な計測用途**、ボード上の+12V 電源でステッピングモーターの応用ができます。**開
発ツールは Microchip 純正 統合開発環境 MPLAB と BASIC コンパイラ
(microEngineeringLab,Inc の PICBasic Pro Compiler)**で簡単に BASIC で上記、全機能が利
用可能。他に CCS C, HI-TECH PICC, WIZ C, MPASM 等 HEX を生成するコンパイラで利
用可能。

電源	AC 100V 入力。(50Hz/60Hz) +5V, ±15V,+12V 利用可(CON1,CON2 引き出し)。
基板 Size	W160 D150 H28 (内ユニバーサルエリア 150×35) ユニバーサルエリアに 40P DIP(F877,C774,C74)が 2 個 入り余裕のスペースです。
RS-232C	ADM232AAN, PC/AT D-Sub 9P ジャック(メス)。 Tx,Rx はボード上でクロス、ケーブルはストレートケーブル付属。
LCD	16 桁 2 行バックライト付 LCD Ass'y 付属。 (20 桁 4 行 LCD にそのまま置き換え可能)
EEPROM	24LC256 シリアル EEPROM 装備。
A/D1 用 OP-AMP	アナログデバイセス 差動計装増幅器 AD624。 増幅度(ショートプラグ切り換え) ±15VDC-DC Conv. ×1、×100、×200、×250、×500、 ×1000、R 外付け増幅度任意。
A/D2,A/D3	マイコンアナログポート直結。
使用 PIC	PIC16F876,16C773,16F873,16C73,16C76,16F73,16F76 開発時 ARIES 28P ゼロプレッシャーIC ソケット使用 組み込み時 IC ソケット取り外して PIC 装着。
その他	PORTB,PORTC,PORTD ポート表示 Chip LED 表示(1.2mA)。 クロックはムラタの 3 端子セラロック差し換えで任意。(Max.40MHz)

LCD,EEPROM 不使用で **PORTB,PORTC,PORTD,PORTE 完全開放**。PIC マイコンのすべての
端子がコネクタに引き出してあります。A/D Conv. 用基準電圧 LM236AZ5.0 装備。

開発ツール

Microchip 純正 統合開発環境 MPLAB(無償添付) MPLAB 上から PICBasic Pro Compiler, PICSTART Plus が使えますので開発作業効率がよい。
(別売り) BASIC コンパイラ(BASIC 文法で上述の機能を使用可能)
microEngineeringLab,Inc PICBasic Pro Compiler 他、CCS C, HI-TECH PICC, WIZ C, MPASM 等 HEX を生成するコンパイラで利用可能。

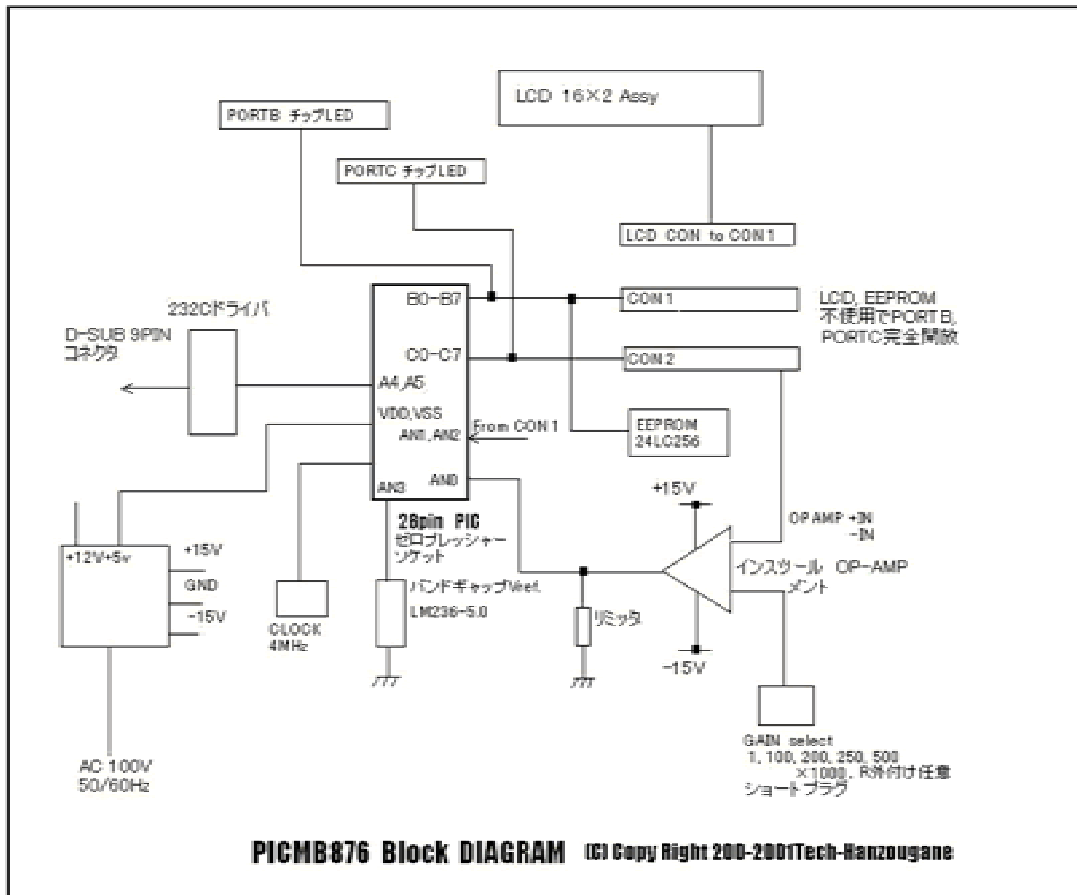
PIC マイコンボード(PICMB876)概観(162×150 内 150×35 Univ.)



SchematicDesigned August 15, 2000 Tech・Hanzougane Yoshiaki Morohashi [Code:PICMB876]

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PICMB876 BLOCK DIAGRAM



オプション



PICMB876EXT40



PICBasic Pro Compiler

PICMB876 対応マイコン

PIC16F876,PIC16C773,PIC16F873,PIC16C73,PIC16C76,PIC16F73,
PIC16F76 ,PIC18F252, PIC18F258 他、28 ピン PIC マイコンすべて。

PICMB876EXT40(オプション)28P-40PZIF 変換アダプタで対応マイコン

PIC16F874,PIC16C774,PIC16F877,PIC16C74,PIC16C77,PIC16F74,
PIC16F77,PIC16C64 ,PIC18F452,PIC18F458 他、40 ピン PIC マイコン
すべて。

PICBasic Pro コンパイラは下記、PIC MCU をサポートしています。

10F202, 10F206, 10F222: **Limited support.** ([more information](#))

12C508(A), 12C509(A), 12CE518, 12CE519, 12F508, 12F509, 12F510, 12F519: **Limited support.**
([more information](#))

12C671, 12C672, 12CE673, 12CE674, 12F609, 12F615, 12HV609, 12HV615, 12F629, 12F635, 12F675,
12F683: **Supported.** 14000: **Supported.** 16C432, 16C433: **Supported.**

16C505, 16C54, 16C54A, 16C54C, 16C55, 16C554, 16C557, 16C558, 16C55A, 16C56, 16C56A, 16C57,
16C57C, 16C58, 16C58B, 16F505, 16F506, 16F526, 16F54, 16F57, 16F59, 16HV540: **Limited
support.** ([more information](#))

16C554, 16C557, 16C558, 16C61, 16C62, 16C620, 16C620A, 16C621, 16C621A, 16C622, 16C622A,
16C62A, 16C62B, 16C63, 16C63A, 16C64, 16C642, 16C64A, 16C65, 16C65A, 16C65B, 16C66, 16C662,
16C67, 16C71, 16C710, 16C711, 16C712, 16C715, 16C716, 16C717, 16C72, 16C72A, 16C73, 16C73A,
16C73B, 16C74, 16C745, 16C74A, 16C74B, 16C76, 16C765, 16C77, 16C770, 16C771, 16C773,
16C774, 16C781, 16C782, 16C84, 16C923, 16C924, 16C925, 16C926, 16CE623, 16CE624, 16CE625:
Supported.

16F610, 16F616, 16F627, 16F627A, 16F628, 16F628A, 16F630, 16F631, 16F636, 16F639, 16F648A,
16F676, 16F677, 16F684, 16F685, 16F687, 16F688, 16F689, 16F690, 16F716, 16F72, 16F722,
16F723, 16F724, 16F726, 16F727, 16F73, 16F737, 16F74, 16F747, 16F76, 16F767, 16F77, 16F777,
16F785, 16F818, 16F819, 16F83, 16F84, 16F84A, 16F87, 16F870, 16F871, 16F872, 16F873,
16F873A, 16F874, 16F874A, 16F876, 16F876A, 16F877, 16F877A, 16F88, 16F882, 16F883, 16F884,
16F886, 16F887, 16F913, 16F914, 16F916, 16F917, 16F946, 16LF722, 16LF723, 16LF724, 16LF726,
16LF727, 16HV610, 16HV616, 16HV785: **Supported.***

16F1826, 16F1827, 16F1933, 16F1934, 16F1936, 16F1937, 16F1938, 16F1939, 16F1946, 16F1947,
16LF1826, 16LF1827, 16LF1933, 16LF1934, 16LF1936, 16LF1937, 16LF1938, 16LF1939, 16LF1946,
16LF1947: **Supported.***

17C42A, 17C43, 17C44, 17C752, 17C756(A), 17C762, 17C766: **Supported.**

18C242, 18C252, 18C442, 18C452, 18C601, 18C658, 18C801, 18C858: **Supported.**

18F1220, 18F1230, 18F1231, 18F1320, 18F1330, 18F1331, 18F2220, 18F2221, 18F2320, 18F2321,
18F2331, 18F2410, 18F242, 18F2420, 18F2423, 18F2431, 18F2439, 18F2450, 18F2455, 18F2458,
18F248, 18F2480, 18F2510, 18F2515, 18F252, 18F2520, 18F2523, 18F2525, 18F2539, 18F2550,
18F2553, 18F258, 18F2580, 18F2585, 18F2610, 18F2620, 18F2680, 18F2682, 18F2685, 18F4220,
18F4221, 18F4320, 18F4321, 18F4331, 18F4410, 18F442, 18F4420, 18F4423, 18F4431, 18F4439,
18F4450, 18F4455, 18F4458, 18F448, 18F4480, 18F4510, 18F4515, 18F452, 18F4520, 18F4523,
18F4525, 18F4539, 18F4550, 18F4553, 18F458, 18F4580, 18F4585, 18F4610, 18F4620, 18F4680,
18F4682, 18F4685, 18F6310, 18F6390, 18F6393, 18F6410, 18F6490, 18F6493, 18F6520, 18F6525,

18F6527, 18F6585, 18F6620, 18F6621, 18F6622, 18F6627, 18F6628, 18F6680, 18F6720, 18F6722, 18F6723, 18F8310, 18F8390, 18F8393, 18F8410, 18F8490, 18F8493, 18F8520, 18F8525, 18F8527, 18F8585, 18F8620, 18F8621, 18F8622, 18F8627, 18F8628, 18F8680, 18F8720, 18F8722, 18F8723:

Supported.

18F13K22, 18F13K50, 18F14K22, 18F14K50, 18F23K20, 18F24J10, 18F24J11, 18F24J50, 18F24K20, 18F25J10, 18F25J11, 18F25J50, 18F25K20, 18F26J11, 18F26J50, 18F26K20, 18F43K20, 18F44J10, 18F44J11, 18F44J50, 18F44K20, 18F45J10, 18F45J11, 18F45J50, 18F45K20, 18F46J11, 18F46J50, 18F46K20, 18F63J11, 18F63J90, 18F64J11, 18F64J90, 18F65J10, 18F65J11, 18F65J15, 18F65J50, 18F65J90, 18F66J10, 18F66J11, 18F66J15, 18F66J16, 18F66J50, 18F66J55, 18F66J60, 18F66J65, 18F66J90, 18F66J93, 18F67J10, 18F67J11, 18F67J50, 18F67J60, 18F67J90, 18F67J93, 18F83J11, 18F83J90, 18F84J11, 18F84J90, 18F85J10, 18F85J11, 18F85J15, 18F85J50, 18F85J90, 18F86J10, 18F86J11, 18F86J15, 18F86J16, 18F86J50, 18F86J55, 18F86J60, 18F86J65, 18F86J90, 18F86J93, 18F87J10, 18F87J11, 18F87J50, 18F87J60, 18F87J90, 18F87J93, 18F96J60, 18F96J65, 18F97J60:

Supported.

18LF13K22, 18LF13K50, 18LF14K22, 18LF14K50, 18LF24J10, 18LF24J11, 18LF24J50, 18LF25J10, 18LF25J11, 18LF25J50, 18LF26J11, 18LF26J50, 18LF44J10, 18LF44J11, 18LF44J50, 18LF45J10, 18LF45J11, 18LF45J50, 18LF46J11, 18LF46J50: **Supported.***

PicStic1, PicStic2, PicStic3, PicStic4, PicStic1 2k, PicStic2 2k, PicStic3 2k, PicStic4 2k, PicStic5: **Supported.**

rfPIC12C509AF, rfPIC12C509AG: **Limited support** as base device PIC12C509A ([more information](#)) .

rfPIC12C509AF, rfPIC12C509AG, rfPIC12F675F, rfPIC12F675H, rfPIC12F675K: **Supported** as base device PIC12C509 or PIC12F675

** The "LF" parts listed here represent those cases where "LF" parts have different requirements than the corresponding "F" part. Other "LF" parts are supported, but not listed here. In most cases, the "F" and "LF" versions are equivalent.*

PICBASIC Pro コンパイラー コマンド一覧

- **@** Insert one line of assembly language code.
- **ADCIN** Read on-chip analog to digital converter.
- **ASM..ENDASM** Insert assembly language code section.
- **BRANCH** Computed **GOTO** (equiv. to **ON..GOTO**).
- **BRANCHL** Branch out of page (long **BRANCH**).
- **BUTTON** Debounce and auto-repeat input on specified pin.
- **CALL** Call assembly language subroutine.
- **CLEAR** Zero all variables.
- **CLEARWDT** Clear (tickle) Watchdog Timer.
- **COUNT** Count number of pulses on a pin.
- **DATA** Define initial contents of on-chip EEPROM.
- **DEBUG** Asynchronous serial output to fixed pin and baud.
- **DEBUGIN** Asynchronous serial input from fixed pin and baud.
- **DISABLE** Disable **ON DEBUG** and **ON INTERRUPT** processing.
- **DISABLE DEBUG** Disable **ON DEBUG** processing.
- **DISABLE INTERRUPT** Disable **ON INTERRUPT** processing.
- **DTMFOUT** Produce touch-tones on a pin.
- **EEPROM** Define initial contents of on-chip EEPROM.
- **ENABLE** Enable **ON DEBUG** and **ON INTERRUPT** processing.
- **ENABLE DEBUG** Enable **ON DEBUG** processing.
- **ENABLE INTERRUPT** Enable **ON INTERRUPT** processing.
- **END** Stop execution and enter low power mode.
- **ERASECODE** Erase block of code memory
- **FOR..NEXT** Repeatedly execute statements.
- **FREQOUT** Produce up to 2 frequencies on a pin.
- **GOSUB** Call BASIC subroutine at specified label.
- **GOTO** Continue execution at specified label.
- **HIGH** Make pin output high.
- **HPWM** Output hardware pulse width modulated pulse train.
- **HSERIN** Hardware asynchronous serial input.
- **HSERIN2** Hardware asynchronous serial input, second port.
- **HSEROUT** Hardware asynchronous serial output.
- **HSEROUT2** Hardware asynchronous serial output, second port.
- **I2CREAD** Read from I2C device.
- **I2CWRITE** Write to I2C device.

- **IF..THEN..ELSE..ENDIF** Conditionally execute statements.
- **INPUT** Make pin an input.
- **LCDIN** Read from LCD RAM.
- **LCDOUT** Display characters on LCD.
- **{LET}** Assign result of an expression to a variable.
- **LOOKDOWN** Search constant table for value.
- **LOOKDOWN2** Search constant / variable table for value.
- **LOOKUP** Fetch constant value from table.
- **LOOKUP2** Fetch constant / variable value from table.
- **LOW** Make pin output low.
- **NAP** Power down processor for short period of time.
- **ON DEBUG** Execute BASIC debug monitor.
- **ON INTERRUPT** Execute BASIC subroutine on an interrupt.
- **OWIN** One-wire input.
- **OWOUT** One-wire output.
- **OUTPUT** Make pin an output.
- **PAUSE** Delay (1mSec resolution).
- **PAUSEUS** Delay (1uSec resolution).
- **PEEK** Read byte from register.
- **PEEKCODE** Read byte from code space
- **POKE** Write byte to register.
- **POKECODE** Write byte to code space at device programming time
- **POT** Read potentiometer on specified pin.
- **PULSIN** Measure pulse width on a pin.
- **PULSOUT** Generate pulse to a pin.
- **PWM** Output pulse width modulated pulse train to pin.
- **RANDOM** Generate pseudo-random number.
- **RCTIME** Measure pulse width on a pin.
- **READ** Read byte from on-chip EEPROM.
- **READCODE** Read word from code memory.
- **REPEAT..UNTIL** Execute statements until condition is true.
- **RESUME** Continue execution after interrupt handling.
- **RETURN** Continue at statement following last **GOSUB**.
- **REVERSE** Make output pin an input or an input pin an output.
- **SELECT CASE** Compare a variable with different values.
- **SERIN** Asynchronous serial input (BS1 style).

- **SERIN2** Asynchronous serial input (BS2 style).
- **SEROUT** Asynchronous serial output (BS1 style).
- **SEROUT2** Asynchronous serial output (BS2 style).
- **SHIFTIN** Synchronous serial input.
- **SHIFTOUT** Synchronous serial output.
- **SLEEP** Power down processor for a period of time.
- **SOUND** Generate tone or white-noise on specified pin.
- **STOP** Stop program execution.
- **SWAP** Exchange the values of two variables.
- **TOGGLE** Make pin output and toggle state.
- **USBIN** USB input.
- **USBINIT** Initialize USB.
- **USBOUT** USB output.
- **WHILE..WEND** Execute statements while condition is true.
- **WRITE** Write byte to on-chip EEPROM.
- **WRITECODE** Write word to code memory.
- **XIN** X-10 input.
- **XOUT** X-10 output.

Functions / Operators:

All math operations are unsigned and performed with 16-bit precision.

The operators supported are:

Math Operators	Description
+	Addition
-	Subtraction
*	Multiplication
**	Top 16 Bits of Multiplication
*/	Middle 16 Bits of Multiplication
/	Division
//	Remainder (Modulus)

<<	Shift Left
>>	Shift Right
ABS	Absolute Value*
COS	Cosine
DCD	2 ⁿ Decode
DIG	Digit
DIV32	31-bit x 15-bit Divide
MAX	Maximum*
MIN	Minimum*
NCD	Encode
REV	Reverse Bits
SIN	Sine
SQR	Square Root
&	Bitwise AND
	Bitwise OR
^	Bitwise Exclusive OR
~	Bitwise NOT
&/	Bitwise NOT AND
/	Bitwise NOT OR
^/	Bitwise NOT Exclusive OR

*Implementation differs from BASIC Stamp.

MEMO