



Welcome to [E-XFL.COM](#)

### What is "[Embedded - Microcontrollers](#)"?

"[Embedded - Microcontrollers](#)" refer to small, integrated circuits designed to perform specific tasks within larger systems. These microcontrollers are essentially compact computers on a single chip, containing a processor core, memory, and programmable input/output peripherals. They are called "embedded" because they are embedded within electronic devices to control various functions, rather than serving as standalone computers. Microcontrollers are crucial in modern electronics, providing the intelligence and control needed for a wide range of applications.

### Applications of "[Embedded - Microcontrollers](#)"

#### Details

|                            |                                                                                                                                                                                 |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Status             | Obsolete                                                                                                                                                                        |
| Core Processor             | F <sup>2</sup> MC-8FX                                                                                                                                                           |
| Core Size                  | 8-Bit                                                                                                                                                                           |
| Speed                      | 16MHz                                                                                                                                                                           |
| Connectivity               | I <sup>2</sup> C, LINbus, SIO, UART/USART                                                                                                                                       |
| Peripherals                | POR, PWM, WDT                                                                                                                                                                   |
| Number of I/O              | 29                                                                                                                                                                              |
| Program Memory Size        | 20KB (20K x 8)                                                                                                                                                                  |
| Program Memory Type        | FLASH                                                                                                                                                                           |
| EEPROM Size                | -                                                                                                                                                                               |
| RAM Size                   | 1008 x 8                                                                                                                                                                        |
| Voltage - Supply (Vcc/Vdd) | 2.4V ~ 5.5V                                                                                                                                                                     |
| Data Converters            | A/D 8x8/10b                                                                                                                                                                     |
| Oscillator Type            | External                                                                                                                                                                        |
| Operating Temperature      | -40°C ~ 85°C (TA)                                                                                                                                                               |
| Mounting Type              | Surface Mount                                                                                                                                                                   |
| Package / Case             | 32-WQFN Exposed Pad                                                                                                                                                             |
| Supplier Device Package    | 32-QFN (5x5)                                                                                                                                                                    |
| Purchase URL               | <a href="https://www.e-xfl.com/product-detail/infineon-technologies/mb95f334kwqn-g-snere1">https://www.e-xfl.com/product-detail/infineon-technologies/mb95f334kwqn-g-snere1</a> |

## New 8FX 8bit Microcontroller

### New 8FX MCU — MB95260 Series

| Part number         | Pin count | Application | Operation voltage | ROM/RAM   | LVD | I/O | Timer                                                                                                                                                                                                                                                                                         | LIN-UART                                                                                                                                                                                                                                                                           | 8/10bit A/D                                      | Package |
|---------------------|-----------|-------------|-------------------|-----------|-----|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|---------|
| MB95F264HPF-G-SNE2  | 20        | Standard    | 2.4-5.5V          | 20KB/496B | —   | 16  | 2ch, The timer can be configured as an "8-bit timer×2 channels" or a "16-bit timer×1 channel". It has built-in timer function, PWM, C/PWM function and input capture function. Count clock can be selected from internal clocks (seven types) and external clocks. It can output square wave. | 1ch, A wide range of communication speed can be selected by a dedicated reload timer. It has built-in timer function, clock-synchronized serial data transfer and clock-asynchronous serial data transfer is enabled. The LIN function can be used as a LIN master or a LIN slave. | 6ch, 8-bit or 10-bit resolution can be selected. | SOP20   |
| MB95F264HPTT-G-SNE2 |           |             |                   | 12KB/496B |     |     |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                    |                                                  | TSSOP20 |
| MB95F263HPF-G-SNE2  |           |             |                   | 8KB/240B  |     |     |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                    |                                                  | SOP20   |
| MB95F263HPTT-G-SNE2 |           |             |                   | 20KB/496B |     |     |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                    |                                                  | TSSOP20 |
| MB95F262HPF-G-SNE2  |           |             |                   | 12KB/496B |     |     |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                    |                                                  | SOP20   |
| MB95F262HPTT-G-SNE2 |           |             |                   | 8KB/240B  |     |     |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                    |                                                  | TSSOP20 |
| MB95F264KPF-G-SNE2  |           |             |                   | 20KB/496B |     |     |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                    |                                                  | SOP20   |
| MB95F264KPTT-G-SNE2 |           |             |                   | 12KB/496B |     |     |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                    |                                                  | TSSOP20 |
| MB95F263KPF-G-SNE2  |           |             |                   | 8KB/240B  |     |     |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                    |                                                  | SOP20   |
| MB95F262KPF-G-SNE2  |           |             |                   | 8KB/240B  |     |     |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                    |                                                  | TSSOP20 |

### New 8FX MCU — MB95350 Series

| Part number               | Pin count | Application | Operation voltage | ROM/RAM   | LVD | I/O | Timer                                                                                               | LIN-UART                                     | 8/10bit A/D                         | Package |
|---------------------------|-----------|-------------|-------------------|-----------|-----|-----|-----------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------------------|---------|
| MB95F354LPF-G-SNE2        | 24        | Standard    | 1.8-3.6V          | 20KB/496B | —   | 21  | • 8/16-bit composite timer×2 channels<br>• Time-base timer×1 channel<br>• Watch prescaler×1 channel | • UART/SIO×1 channel<br>• LIN-UART×1 channel | • 8/10-bit A/D converter×6 channels | SOP24   |
| MB95F354LPFT-G-SNE2       |           |             |                   | 12KB/496B |     |     |                                                                                                     |                                              |                                     | TSSOP24 |
| MB95F353LPF-G-SNE2        |           |             |                   | 8KB/240B  |     |     |                                                                                                     |                                              |                                     | SOP24   |
| MB95F353LPFT-G-SNE2       |           |             |                   | 20KB/496B |     |     |                                                                                                     |                                              |                                     | TSSOP24 |
| MB95F353LWQNG-SN(EF)ERJE1 |           |             |                   | 8KB/240B  |     |     |                                                                                                     |                                              |                                     | QFN32   |
| MB95F352LPF-G-SNE2        |           |             |                   | 20KB/496B |     |     |                                                                                                     |                                              |                                     | SOP24   |
| MB95F352LPFT-G-SNE2       |           |             |                   | 12KB/496B |     |     |                                                                                                     |                                              |                                     | TSSOP24 |
| MB95F352LWQNG-SN(EF)ERJE1 |           |             |                   | 8KB/240B  |     |     |                                                                                                     |                                              |                                     | QFN32   |
| MB95F354EPF-G-SNE2        |           |             |                   | 20KB/496B |     |     |                                                                                                     |                                              |                                     | SOP24   |
| MB95F354EPFT-G-SNE2       |           |             |                   | 12KB/496B |     |     |                                                                                                     |                                              |                                     | TSSOP24 |

### New 8FX MCU — MB95430 Series

| Part number          | Pin count | Application | Operation voltage | ROM/RAM   | LVD | I/O | Timer                                                                                                                                                                                                       | LIN-UART                                             | 8/10bit A/D                       | Special                                                                      | Package |
|----------------------|-----------|-------------|-------------------|-----------|-----|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|-----------------------------------|------------------------------------------------------------------------------|---------|
| MB95F434HP-G-SH-SNE2 | 32        | Standard    | 2.4-5.5V          | 20KB/496B | —   | 28  | • 8/16-bit composite timer×1 channel<br>• 16-bit PPG×1 channel<br>• 16-bit free-running timer×1 channel<br>• 16-bit output compare×2 channels<br>• Time-base timer×1 channel<br>• Watch prescaler×1 channel | • UART/SIO×1 channel<br>• I <sup>2</sup> C×1 channel | 8/10-bit A/D converter×8 channels | • Voltage comparator×4 channels<br>• Operational amplifier (OPAMP)×1 channel | SDIP32  |
| MB95F434HPMC-G-SNE2  |           |             |                   | 12KB/240B |     |     |                                                                                                                                                                                                             |                                                      |                                   |                                                                              | LQFP32  |
| MB95F433HP-G-SH-SNE2 |           |             |                   | 8KB/240B  |     |     |                                                                                                                                                                                                             |                                                      |                                   |                                                                              | SDIP32  |
| MB95F433HPMC-G-SNE2  |           |             |                   | 20KB/496B |     |     |                                                                                                                                                                                                             |                                                      |                                   |                                                                              | LQFP32  |
| MB95F432HP-G-SH-SNE2 |           |             |                   | 12KB/240B |     |     |                                                                                                                                                                                                             |                                                      |                                   |                                                                              | SDIP32  |
| MB95F432HPMC-G-SNE2  |           |             |                   | 8KB/240B  |     |     |                                                                                                                                                                                                             |                                                      |                                   |                                                                              | LQFP32  |
| MB95F434KP-G-SH-SNE2 |           |             |                   | 20KB/496B |     |     |                                                                                                                                                                                                             |                                                      |                                   |                                                                              | SDIP32  |
| MB95F434KPMC-G-SNE2  |           |             |                   | 12KB/240B |     |     |                                                                                                                                                                                                             |                                                      |                                   |                                                                              | LQFP32  |
| MB95F433KP-G-SH-SNE2 |           |             |                   | 8KB/240B  |     |     |                                                                                                                                                                                                             |                                                      |                                   |                                                                              | SDIP32  |
| MB95F433KPMC-G-SNE2  |           |             |                   | 8KB/240B  |     |     |                                                                                                                                                                                                             |                                                      |                                   |                                                                              | LQFP32  |

### New 8FX MCU — MB95330 Series

| Part number            | Pin count | Application | Operation voltage | ROM/RAM    | LVD | I/O | Timer                                                                                                                                                                                                                                                                                                                                | Communication                                                                | 8/10bit A/D                       | Special                                                                                   | Package |
|------------------------|-----------|-------------|-------------------|------------|-----|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|-----------------------------------|-------------------------------------------------------------------------------------------|---------|
| MB95F334HPMC-G-SNE2    | 32        | Standard    | 2.4-5.5V          | 20KB/1008B | —   | 28  | • 8/16-bit composite timer×2 channels<br>• 8/16-bit PPG×3 channels<br>• 16-bit PPG×1 channel (can work independently or together with the multi-pulse generator)<br>• 16-bit reload timer×1 channel (can work independently or together with the multi-pulse generator)<br>• Timebase timer×1 channel<br>• Watch prescaler×1 channel | • UART/SIO×1 channel<br>• LIN-UART×1 channel<br>• I <sup>2</sup> C×1 channel | 8/10-bit A/D converter×8 channels | • Multi-pulse generator (for DC motor control)×1 channel<br>• Dual operation Flash memory | LQFP32  |
| MB95F334HP-G-SH-SNE2   |           |             |                   | 20KB/1008B |     |     |                                                                                                                                                                                                                                                                                                                                      |                                                                              |                                   |                                                                                           | SDIP32  |
| MB95F334HWQNG-G-SNERE1 |           |             |                   | 20KB/1008B |     |     |                                                                                                                                                                                                                                                                                                                                      |                                                                              |                                   |                                                                                           | QFN32   |
| MB95F334KPMC-G-SNE2    |           |             |                   | 12KB/496B  |     |     |                                                                                                                                                                                                                                                                                                                                      |                                                                              |                                   |                                                                                           | LQFP32  |
| MB95F334KP-G-SH-SNE2   |           |             |                   | 12KB/496B  |     |     |                                                                                                                                                                                                                                                                                                                                      |                                                                              |                                   |                                                                                           | SDIP32  |
| MB95F334KWQNG-G-SNERE1 |           |             |                   | 12KB/496B  |     |     |                                                                                                                                                                                                                                                                                                                                      |                                                                              |                                   |                                                                                           | QFN32   |
| MB95F333HPMC-G-SNE2    |           |             |                   | 12KB/496B  |     |     |                                                                                                                                                                                                                                                                                                                                      |                                                                              |                                   |                                                                                           | SDIP32  |
| MB95F333HP-G-SH-SNE2   |           |             |                   | 12KB/496B  |     |     |                                                                                                                                                                                                                                                                                                                                      |                                                                              |                                   |                                                                                           | SDIP32  |
| MB95F333HWQNG-G-SNERE1 |           |             |                   | 8KB/240B   |     |     |                                                                                                                                                                                                                                                                                                                                      |                                                                              |                                   |                                                                                           | QFN32   |
| MB95F333KPMC-G-SNE2    |           |             |                   | 8KB/240B   |     |     |                                                                                                                                                                                                                                                                                                                                      |                                                                              |                                   |                                                                                           | SDIP32  |

## New 8FX 8bit Microcontroller

### New 8FX MCU — MB95390 Series select

| Part number            | Pin count | Application | Operation voltage | ROM/RAM    | LVD | I/O | Timer                                                                                                                                                                                                                                                                                                    | Communication                                                                | 8/10bit A/D                        | Special                                                                                   | Package | Packing |
|------------------------|-----------|-------------|-------------------|------------|-----|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------------|---------|---------|
| MB95F398HPMC-G-SNE2    | 48        | Standard    | 2.4-5.5V          | 60KB/2032B | —   | 44  | • 8/16-bit composite timer × 2 channels<br>• 8/16-bit PPG×3 channels<br>• 16-bit PPG×1 channel (can work independently or together with the multi-pulse generator)<br>• 16-bit reload timer×1 channel (can work independently or together with the multi-pulse generator)<br>• Watch prescaler×1 channel | • UART/SIO×1 channel<br>• LIN-UART×1 channel<br>• I <sup>2</sup> C×1 channel | 8/10-bit A/D converter×12 channels | • Multi-pulse generator (for DC motor control)×1 channel<br>• Dual operation Flash memory | LQFP48  | Tray    |
| MB95F398HWQNG-G-SNE1   |           |             |                   | 60KB/2032B |     |     |                                                                                                                                                                                                                                                                                                          |                                                                              |                                    |                                                                                           | QFN48   | Tray    |
| MB95F398HWQNG-G-SNERE1 |           |             |                   | 36KB/1008B |     |     |                                                                                                                                                                                                                                                                                                          |                                                                              |                                    |                                                                                           | QFN48   | Tape    |
| MB95F398KPMC-G-SNE2    |           |             |                   | 36KB/1008B |     |     |                                                                                                                                                                                                                                                                                                          |                                                                              |                                    |                                                                                           | QFN48   | Tape    |
| MB95F398KWQNG-G-SNE1   |           |             |                   | 36KB/1008B |     |     |                                                                                                                                                                                                                                                                                                          |                                                                              |                                    |                                                                                           | QFN48   | Tape    |
| MB95F398KQNG-G-SNERE1  |           |             |                   | 20KB/496B  |     |     |                                                                                                                                                                                                                                                                                                          |                                                                              |                                    |                                                                                           | QFN48   | Tape    |
| MB95F398HPMC-G-SNE2    |           |             |                   | 20KB/496B  |     |     |                                                                                                                                                                                                                                                                                                          |                                                                              |                                    |                                                                                           | QFN48   | Tape    |
| MB95F398HWQNG-G-SNE1   |           |             |                   | 20KB/496B  |     |     |                                                                                                                                                                                                                                                                                                          |                                                                              |                                    |                                                                                           | QFN48   | Tape    |
| MB95F398HWQNG-G-SNERE1 |           |             |                   | 20KB/496B  |     |     |                                                                                                                                                                                                                                                                                                          |                                                                              |                                    |                                                                                           | QFN48   | Tape    |
| MB95F398KPMC-G-SNE2    |           |             |                   | 20KB/496B  |     |     |                                                                                                                                                                                                                                                                                                          |                                                                              |                                    |                                                                                           | QFN48   | Tape    |

### New 8FX MCU — MB95310/370 Series

| Part number        | Pin count | Application         | Operation voltage | ROM/RAM    | LVD | I/O | Timer                                                                                                                                                                                                                                                                     | Communication                                             | 8/10bit A/D                         | Special                                                           | Package        |
|--------------------|-----------|---------------------|-------------------|------------|-----|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-------------------------------------|-------------------------------------------------------------------|----------------|
| MB95F314PMC-G-SNE2 | 80        | Segment LCD display | 1.8-3.6V          | 20KB/496B  | —   | 71  | • 8/16-bit composite timer × 2 channels<br>• 8/16-bit PPG × 2 channels (Each channel of PPG can be configured as "8-BitPPG × 2 Channels" or "16-bit PPG×1 channel")<br>• 16-bit reload timer × 1 channel<br>• Timebase timer × 1 channel<br>• Watch prescaler × 1 channel | • UART/SIO × 2 channels<br>• I <sup>2</sup> C × 1 channel | 8/10-bit A/D converter × 4 channels | COM:4 (Max) SEG:40(Max) 40SEG × 4 COM:160 pixels can be displayed | LQFP80         |
| MB95F314PMC-G-SNE2 |           |                     |                   | 36KB/1008B |     |     |                                                                                                                                                                                                                                                                           |                                                           |                                     |                                                                   | LQFP80         |
| MB95F318PMC-G-SNE2 |           |                     |                   | 60KB/2032B |     |     |                                                                                                                                                                                                                                                                           |                                                           |                                     |                                                                   | LQFP80         |
| MB95F318PMC-G-SNE2 |           |                     |                   | 20KB/496B  |     |     |                                                                                                                                                                                                                                                                           |                                                           |                                     |                                                                   | LQFP64(0.65mm) |
| MB95F318PMC-G-SNE2 |           |                     |                   | 36KB/1008B |     |     |                                                                                                                                                                                                                                                                           |                                                           |                                     |                                                                   | LQFP64(0.5mm)  |
| MB95F318PMC-G-SNE2 |           |                     |                   | 60KB/2032B |     |     |                                                                                                                                                                                                                                                                           |                                                           |                                     |                                                                   | LQFP64(0.65mm) |
| MB95F318PMC-G-SNE2 |           |                     |                   | 20KB/496B  |     |     |                                                                                                                                                                                                                                                                           |                                                           |                                     |                                                                   | LQFP64(0.5mm)  |
| MB95F318PMC-G-SNE2 |           |                     |                   | 36KB/1008B |     |     |                                                                                                                                                                                                                                                                           |                                                           |                                     |                                                                   | LQFP64(0.5mm)  |
| MB95F318PMC-G-SNE2 |           |                     |                   | 60KB/2032B |     |     |                                                                                                                                                                                                                                                                           |                                                           |                                     |                                                                   | LQFP64(0.5mm)  |
| MB95F318PMC-G-SNE2 |           |                     |                   | 20KB/496B  |     |     |                                                                                                                                                                                                                                                                           |                                                           |                                     |                                                                   | LQFP64(0.5mm)  |

### New 8FX MCU — MB95410/470 Series

| Part number         | Pin count | Application | Operation voltage | ROM/RAM    | LVD | I/O | Timer                                                                                                                                                                                                     | Communication                                             | 8/10bit A/D                         | Other function                                                                                                                                          | Package       |
|---------------------|-----------|-------------|-------------------|------------|-----|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| MB95F414KPMC-G-SNE2 | 80        | Standard    | 2.4-5.5V          | 20KB/496B  | —   | 75  | • 8/16-bit composite timer 2 ch<br>• 8/16-bit PPG 2ch (PPG can be used as "8-bit PPG × 1 channel" or "16-bit PPG × 1 channel")<br>• 16-bit reload timer 1ch<br>• Time-base timer<br>• Watch prescaler 1ch | • UART/SIO × 3 channels<br>• I <sup>2</sup> C × 1 channel | 8/10-bit A/D converter × 8 channels | LCDC: COM output: 4 or 8 (Max) (selectable) SEG output: 40 or 36 (Max) (selectable) 36 SEG × 8 COM: 288 pixels can be displayed Voltage comparator: 1ch | LQFP80(0.5mm) |
| MB95F414HPMC-G-SNE2 |           |             |                   | 36KB/1008B |     |     |                                                                                                                                                                                                           |                                                           |                                     |                                                                                                                                                         | LQFP80(0.5mm) |
| MB95F418KPMC-G-SNE2 |           |             |                   | 60KB/2032B |     |     |                                                                                                                                                                                                           |                                                           |                                     |                                                                                                                                                         | LQFP80(0.5mm) |
| MB95F418KPMC-G-SNE2 |           |             |                   | 20KB/496B  |     |     |                                                                                                                                                                                                           |                                                           |                                     |                                                                                                                                                         | LQFP64(0.5mm) |
| MB95F418KPMC-G-SNE2 |           |             |                   | 36KB/1008B |     |     |                                                                                                                                                                                                           |                                                           |                                     |                                                                                                                                                         | LQFP64(0.5mm) |
| MB95F418KPMC-G-SNE2 |           |             |                   | 60KB/2032B |     |     |                                                                                                                                                                                                           |                                                           |                                     |                                                                                                                                                         | LQFP64(0.5mm) |
| MB95F418KPMC-G-SNE2 |           |             |                   | 20KB/496B  |     |     |                                                                                                                                                                                                           |                                                           |                                     |                                                                                                                                                         | LQFP64(0.5mm) |
| MB95F418KPMC-G-SNE2 |           |             |                   | 36KB/1008B |     |     |                                                                                                                                                                                                           |                                                           |                                     |                                                                                                                                                         | LQFP64(0.5mm) |
| MB95F418KPMC-G-SNE2 |           |             |                   | 60KB/2032B |     |     |                                                                                                                                                                                                           |                                                           |                                     |                                                                                                                                                         | LQFP64(0.5mm) |
| MB95F418KPMC-G-SNE2 |           |             |                   | 20KB/496B  |     |     |                                                                                                                                                                                                           |                                                           |                                     |                                                                                                                                                         | LQFP64(0.5mm) |

|                     |    |          |          |           |   |    |                                                                                                                                                                                                           |                                                           |                                     |                                                                                                                                                         |               |
|---------------------|----|----------|----------|-----------|---|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| MB95F478HPMC-G-SNE2 | 80 | Standard | 2.4-5.5V | 20KB/496B | — | 75 | • 8/16-bit composite timer 2 ch<br>• 8/16-bit PPG 2ch (PPG can be used as "8-bit PPG × 1 channel" or "16-bit PPG × 1 channel")<br>• 16-bit reload timer 1ch<br>• Time-base timer<br>• Watch prescaler 1ch | • UART/SIO × 3 channels<br>• I <sup>2</sup> C × 1 channel | 8/10-bit A/D converter × 8 channels | LCDC: COM output: 4 or 8 (Max) (selectable) SEG output: 32 or 28 (Max) (selectable) 28 SEG × 8 COM: 224 pixels can be displayed Voltage comparator: 1ch | LQFP64(0.5mm) |
|---------------------|----|----------|----------|-----------|---|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|

## New 8FX 8bit Microcontroller

### New 8FX MCU — MB95560 Series

| Part Number         | Pin count | Application | Operation voltage | ROM/IRAM  | LVD | I/O | Timer                                                                                                                                                                                                                                                                                         | LIN-UART                                                                                                                                                                                                                                                                             | 8/10bit AD                                                                 | Package |
|---------------------|-----------|-------------|-------------------|-----------|-----|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|---------|
| MB95F564HPF-G-SNE2  | 20        | Standard    | 2.4-5.5V          | 20KB/496B | —   | 16  | 2ch, The timer can be configured as an "8-bit timer×2 channels" or a "16-bit timer×1 channel". It has built-in timer function, PWM, C/PWM function and input capture function. Count clock can be selected from internal clocks (seven types) and external clocks. It can output square wave. | 1ch, A wide range of communication speed can be selected by a dedicated reload timer. It has full duplex double buffer. Clock-synchronized serial data transfer and clock-asynchronous serial data transfer is enabled. The LIN function can be used as a LIN master or a LIN slave. | 6ch, 8-bit or 10-bit resolution can be selected. AD working range 2.7-5.5V | SOP20   |
| MB95F564HPTT-G-SNE2 |           |             |                   | 12KB/496B |     |     |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                      |                                                                            | TSSOP20 |
| MB95F563HPF-G-SNE2  |           |             |                   | 8KB/240B  |     |     |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                      |                                                                            | SOP20   |
| MB95F563HPTT-G-SNE2 |           |             |                   | 20KB/496B |     |     |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                      |                                                                            | TSSOP20 |

# FMC3 Cortex-M3 Core 32bit Microcontroller

## Basic Group

|          |     | PIN       | Operation Frequency | Pin numbers | Flash     | RAM  | 12bit ADC | RTC | Ext. Interrupt | USB HID | Serial IIC | SIO | UART | PWC | PWM | PPG | Reload | Multi Function Timer | Max I/O | Package        |
|----------|-----|-----------|---------------------|-------------|-----------|------|-----------|-----|----------------|---------|------------|-----|------|-----|-----|-----|--------|----------------------|---------|----------------|
| Standard | USB | MB9AF111K | 40MHz               | 48          | 64KB+32K  | 16KB | 2(8)      | ○   | 6+NMI          | —       | 4          |     |      | 8   |     |     |        | 1unit                | 36      | LQFP 48        |
|          |     | MB9AF112K | 40MHz               | 48          | 128KB+32K | 16KB | 2(8)      | ○   | 6+NMI          | —       | 4          |     |      | 8   |     |     |        | 1unit                | 36      | QFN 48         |
|          |     | MB9AF111L | 40MHz               | 64          | 64KB      | 16KB | 2(9)      | —   | 7+NMI          | —       | 8          |     |      | 8   |     |     |        | 1unit                | 51      |                |
|          |     | MB9AF112L | 40MHz               | 64          | 128KB     | 16KB | 2(9)      | —   | 7+NMI          | —       | 8          |     |      | 8   |     |     |        | 1unit                | 51      | LQFP64         |
|          |     | MB9AF114L | 40MHz               | 64          | 256KB     | 32KB | 2(9)      | —   | 7+NMI          | —       | 8          |     |      | 8   |     |     |        | 1unit                | 51      |                |
|          |     | MB9AF111M | 40MHz               | 80          | 64KB      | 16KB | 3(12)     | —   | 11+NMI         | —       | 8          |     |      | 8   |     |     |        | 2unit                | 66      |                |
|          |     | MB9AF112M | 40MHz               | 80          | 128KB     | 16KB | 3(12)     | —   | 11+NMI         | —       | 8          |     |      | 8   |     |     |        | 2unit                | 66      | LQFP80         |
|          |     | MB9AF114M | 40MHz               | 80          | 256KB     | 32KB | 3(12)     | —   | 11+NMI         | —       | 8          |     |      | 8   |     |     |        | 2unit                | 66      |                |
|          |     | MB9AF115M | 40MHz               | 80          | 384KB     | 32KB | 3(12)     | —   | 11+NMI         | —       | 8          |     |      | 8   |     |     |        | 2unit                | 66      |                |
|          |     | MB9AF116M | 40MHz               | 80          | 512KB     | 32KB | 3(12)     | —   | 11+NMI         | —       | 8          |     |      | 8   |     |     |        | 2unit                | 66      |                |
|          |     | MB9AF111N | 40MHz               | 100         | 64KB      | 16KB | 3(16)     | —   | 16+NMI         | —       | 8          |     |      | 8   |     |     |        | 2unit                | 83      |                |
|          |     | MB9AF112N | 40MHz               | 100         | 128KB     | 16KB | 3(16)     | —   | 16+NMI         | —       | 8          |     |      | 8   |     |     |        | 2unit                | 83      |                |
|          |     | MB9AF114N | 40MHz               | 100         | 256KB     | 32KB | 3(16)     | —   | 16+NMI         | —       | 8          |     |      | 8   |     |     |        | 2unit                | 83      | LQFP100 QFP100 |
|          |     | MB9AF115N | 40MHz               | 100         | 384KB     | 32KB | 3(16)     | —   | 16+NMI         | —       | 8          |     |      | 8   |     |     |        | 2unit                | 83      |                |
|          |     | MB9AF116N | 40MHz               | 100         | 512KB     | 32KB | 3(16)     | —   | 16+NMI         | —       | 8          |     |      | 8   |     |     |        | 2unit                | 83      |                |
| USB      |     | MB9AF311K | 40MHz               | 48          | 64KB+32K  | 16KB | 2(8)      | ○   | 6+NMI          | 1ch     | 4          |     |      | 8   |     |     |        | 1unit                | 36      | LQFP 48        |
|          |     | MB9AF312K | 40MHz               | 48          | 128KB+32K | 16KB | 2(8)      | ○   | 6+NMI          | 1ch     | 4          |     |      | 8   |     |     |        | 1unit                | 36      | QFN 48         |
|          |     | MB9AF311L | 40MHz               | 64          | 64KB      | 16KB | 2(9)      | —   | 7+NMI          | 1ch     | 8          |     |      | 8   |     |     |        | 1unit                | 51      |                |
|          |     | MB9AF312L | 40MHz               | 64          | 128KB     | 16KB | 2(9)      | —   | 7+NMI          | 1ch     | 8          |     |      | 8   |     |     |        | 1unit                | 51      | LQFP64         |
|          |     | MB9AF314L | 40MHz               | 64          | 256KB     | 32KB | 2(9)      | —   | 7+NMI          | 1ch     | 8          |     |      | 8   |     |     |        | 1unit                | 51      |                |
|          |     | MB9AF311M | 40MHz               | 80          | 64KB      | 16KB | 3(12)     | —   | 11+NMI         | 1ch     | 8          |     |      | 8   |     |     |        | 2unit                | 66      |                |
|          |     | MB9AF312M | 40MHz               | 80          | 128KB     | 16KB | 3(12)     | —   | 11+NMI         | 1ch     | 8          |     |      | 8   |     |     |        | 2unit                | 66      | LQFP80         |
|          |     | MB9AF314M | 40MHz               | 80          | 256KB     | 32KB | 3(12)     | —   | 11+NMI         | 1ch     | 8          |     |      | 8   |     |     |        | 2unit                | 66      |                |
|          |     | MB9AF311N | 40MHz               | 80          | 384KB     | 32KB | 3(12)     | —   | 11+NMI         | 1ch     | 8          |     |      | 8   |     |     |        | 2unit                | 66      |                |
|          |     | MB9AF316M | 40MHz               | 80          | 512KB     | 32KB | 3(12)     | —   | 11+NMI         | 1ch     | 8          |     |      | 8   |     |     |        | 2unit                | 66      |                |
|          |     | MB9AF311N | 40MHz               | 100         | 64KB      | 16KB | 3(16)     | —   | 16+NMI         | 1ch     | 8          |     |      | 8   |     |     |        | 2unit                | 83      |                |
|          |     | MB9AF312N | 40MHz               | 100         | 128KB     | 16KB | 3(16)     | —   | 16+NMI         | 1ch     | 8          |     |      | 8   |     |     |        | 2unit                | 83      |                |
|          |     | MB9AF314N | 40MHz               | 100         | 256KB     | 32KB | 3(16)     | —   | 16+NMI         | 1ch     | 8          |     |      | 8   |     |     |        | 2unit                | 83      | LQFP100 QFP100 |
|          |     | MB9AF315N | 40MHz               | 100         | 384KB     | 32KB | 3(16)     | —   | 16+NMI         | 1ch     | 8          |     |      | 8   |     |     |        | 2unit                | 83      |                |
|          |     | MB9AF316N | 40MHz               | 100         | 512KB     | 32KB | 3(16)     | —   | 16+NMI         | 1ch     | 8          |     |      | 8   |     |     |        | 2unit                | 83      |                |

## Ultra low leak Group

|          |  | PIN       | Operation Frequency | Pin numbers | Flash | RAM | 12bit ADC(ch.) | RTC | Ext. interrupt | LCDC      | Serial IIC | SIO | UART | PWC | PWM | PPG | Reload | Multi Function Timer | Max I/O | Package        |
|----------|--|-----------|---------------------|-------------|-------|-----|----------------|-----|----------------|-----------|------------|-----|------|-----|-----|-----|--------|----------------------|---------|----------------|
| Standard |  | MB9AF131K | 20MHz               | 48          | 64KB  | 8KB | 1(6)           | ○   | 6+NMI          | —         | 4          |     |      | 8   |     |     |        | 1unit                | 37      | LQFP48 QFN48   |
|          |  | MB9AF132K | 20MHz               | 48          | 128KB | 8KB | 1(6)           | ○   | 6+NMI          | —         | 4          |     |      | 8   |     |     |        | 1unit                | 37      |                |
|          |  | MB9AF131L | 20MHz               | 64          | 64KB  | 8KB | 1(8)           | ○   | 8+NMI          | —         | 8          |     |      | 8   |     |     |        | 1unit                | 52      | LQFP64 QFN64   |
|          |  | MB9AF132L | 20MHz               | 64          | 128KB | 8KB | 1(8)           | ○   | 8+NMI          | —         | 8          |     |      | 8   |     |     |        | 1unit                | 52      |                |
|          |  | MB9AF131M | 20MHz               | 80          | 64KB  | 8KB | 1(12)          | ○   | 11+NMI         | —         | 8          |     |      | 8   |     |     |        | 1unit                | 67      | LQFP80         |
|          |  | MB9AF132M | 20MHz               | 80          | 128KB | 8KB | 1(12)          | ○   | 11+NMI         | —         | 8          |     |      | 8   |     |     |        | 1unit                | 67      |                |
|          |  | MB9AF131N | 20MHz               | 100         | 64KB  | 8KB | 1(16)          | ○   | 16+NMI         | —         | 8          |     |      | 8   |     |     |        | 1unit                | 84      | LQFP100 QFP100 |
|          |  | MB9AF132N | 20MHz               | 100         | 128KB | 8KB | 1(16)          | ○   | 16+NMI         | —         | 8          |     |      | 8   |     |     |        | 1unit                | 84      |                |
|          |  | MB9AFA31L | 20MHz               | 64          | 64KB  | 8KB | 1(9)           | ○   | 8+NMI          | 24+4 24+8 | 8          |     |      | 8   |     |     |        | 1unit                | 52      | LQFP64 QFN64   |
|          |  | MB9AFA32L | 20MHz               | 64          | 128KB | 8KB | 1(9)           | ○   | 8+NMI          | 24+4 24+8 | 8          |     |      | 8   |     |     |        | 1unit                | 52      |                |
| LCD      |  | MB9AFA31M | 20MHz               | 80          | 64KB  | 8KB | 1(12)          | ○   | 11+NMI         | 37+4 33+8 | 8          |     |      | 8   |     |     |        | 1unit                | 67      | LQFP80         |
|          |  | MB9AFA32M | 20MHz               | 80          | 128KB | 8KB | 1(12)          | ○   | 11+NMI         | 37+4 33+8 | 8          |     |      | 8   |     |     |        | 1unit                | 67      |                |
|          |  | MB9AFA31N | 20MHz               | 100         | 64KB  | 8KB | 1(16)          | ○   | 16+NMI         | 44+4 40+8 | 8          |     |      | 8   |     |     |        | 1unit                | 84      | LQFP100 QFP100 |
|          |  | MB9AFA32N | 20MHz               | 100         | 128KB | 8KB | 1(16)          | ○   | 16+NMI         | 44+4 40+8 | 8          |     |      | 8   |     |     |        | 1unit                | 84      |                |

# FMC3 Cortex-M3 Core 32bit Microcontroller

## High Performance Group

|              | PIN       | Operation<br>Frequency | Pin<br>numbers | Flash     | RAM   | 12bit<br>ADC(ch.) | RTC    | Ext.<br>interrupt | CAN | USB<br>HID | Ethernet | Serial<br>IIC | UART | PWC | Base Timer<br>PWM PPG Reload | Multi<br>Function<br>Timer | Max<br>I/O | Package |         |
|--------------|-----------|------------------------|----------------|-----------|-------|-------------------|--------|-------------------|-----|------------|----------|---------------|------|-----|------------------------------|----------------------------|------------|---------|---------|
| Standard     | MB9BF104N | 80MHz                  | 100            | 256KB     | 32KB  | 3(16)             | —      | 16+NMI            | —   | —          | —        | 8             |      |     | 8                            |                            | 2unit      | 80      |         |
|              | MB9BF105N | 80MHz                  | 100            | 384KB     | 64KB  | 3(16)             | —      | 16+NMI            | —   | —          | —        | 8             |      |     | 8                            |                            | 2unit      | 80      | LQFP100 |
|              | MB9BF106N | 80MHz                  | 100            | 512KB     | 64KB  | 3(16)             | —      | 16+NMI            | —   | —          | —        | 8             |      |     | 8                            |                            | 2unit      | 80      |         |
|              | MB9BF104R | 80MHz                  | 120            | 256KB     | 32KB  | 3(16)             | —      | 16+NMI            | —   | —          | —        | 8             |      |     | 8                            |                            | 2unit      | 100     |         |
|              | MB9BF105R | 80MHz                  | 120            | 384KB     | 64KB  | 3(16)             | —      | 16+NMI            | —   | —          | —        | 8             |      |     | 8                            |                            | 2unit      | 100     | LQFP120 |
|              | MB9BF106R | 80MHz                  | 120            | 512KB     | 64KB  | 3(16)             | —      | 16+NMI            | —   | —          | —        | 8             |      |     | 8                            |                            | 2unit      | 100     |         |
| USB          | MB9BF304N | 80MHz                  | 100            | 256KB     | 32KB  | 3(16)             | —      | 16+NMI            | —   | 1ch        | —        | 8             |      |     | 8                            |                            | 2unit      | 80      |         |
|              | MB9BF305N | 80MHz                  | 100            | 384KB     | 64KB  | 3(16)             | —      | 16+NMI            | —   | 1ch        | —        | 8             |      |     | 8                            |                            | 2unit      | 80      | LQFP100 |
|              | MB9BF306N | 80MHz                  | 100            | 512KB     | 64KB  | 3(16)             | —      | 16+NMI            | —   | 1ch        | —        | 8             |      |     | 8                            |                            | 2unit      | 80      |         |
|              | MB9BF304R | 80MHz                  | 120            | 256KB     | 32KB  | 3(16)             | —      | 16+NMI            | —   | 1ch        | —        | 8             |      |     | 8                            |                            | 2unit      | 100     |         |
|              | MB9BF305R | 80MHz                  | 120            | 384KB     | 64KB  | 3(16)             | —      | 16+NMI            | —   | 1ch        | —        | 8             |      |     | 8                            |                            | 2unit      | 100     | LQFP120 |
|              | MB9BF306R | 80MHz                  | 120            | 512KB     | 64KB  | 3(16)             | —      | 16+NMI            | —   | 1ch        | —        | 8             |      |     | 8                            |                            | 2unit      | 100     |         |
| CAN          | MB9BF404N | 80MHz                  | 100            | 256KB     | 32KB  | 3(16)             | —      | 16+NMI            | 2ch | —          | —        | 8             |      |     | 8                            |                            | 2unit      | 80      |         |
|              | MB9BF405N | 80MHz                  | 100            | 384KB     | 64KB  | 3(16)             | —      | 16+NMI            | 2ch | —          | —        | 8             |      |     | 8                            |                            | 2unit      | 80      | LQFP100 |
|              | MB9BF406N | 80MHz                  | 100            | 512KB     | 64KB  | 3(16)             | —      | 16+NMI            | 2ch | —          | —        | 8             |      |     | 8                            |                            | 2unit      | 80      |         |
|              | MB9BF404R | 80MHz                  | 120            | 256KB     | 32KB  | 3(16)             | —      | 16+NMI            | 2ch | —          | —        | 8             |      |     | 8                            |                            | 2unit      | 100     |         |
|              | MB9BF405R | 80MHz                  | 120            | 384KB     | 64KB  | 3(16)             | —      | 16+NMI            | 2ch | —          | —        | 8             |      |     | 8                            |                            | 2unit      | 100     | LQFP120 |
|              | MB9BF406R | 80MHz                  | 120            | 512KB     | 64KB  | 3(16)             | —      | 16+NMI            | 2ch | —          | —        | 8             |      |     | 8                            |                            | 2unit      | 100     |         |
| CAN +<br>USB | MB9BF504N | 80MHz                  | 100            | 256KB     | 32KB  | 3(16)             | —      | 16+NMI            | 2ch | 1ch        | —        | 8             |      |     | 8                            |                            | 2unit      | 80      |         |
|              | MB9BF505N | 80MHz                  | 100            | 384KB     | 64KB  | 3(16)             | —      | 16+NMI            | 2ch | 1ch        | —        | 8             |      |     | 8                            |                            | 2unit      | 80      | LQFP100 |
|              | MB9BF506N | 80MHz                  | 100            | 512KB     | 64KB  | 3(16)             | —      | 16+NMI            | 2ch | 1ch        | —        | 8             |      |     | 8                            |                            | 2unit      | 80      |         |
|              | MB9BF504R | 80MHz                  | 120            | 256KB     | 32KB  | 3(16)             | —      | 16+NMI            | 2ch | 1ch        | —        | 8             |      |     | 8                            |                            | 2unit      | 100     |         |
|              | MB9BF505R | 80MHz                  | 120            | 384KB     | 64KB  | 3(16)             | —      | 16+NMI            | 2ch | 1ch        | —        | 8             |      |     | 8                            |                            | 2unit      | 100     | LQFP120 |
|              | MB9BF506R | 80MHz                  | 120            | 512KB     | 64KB  | 3(16)             | —      | 16+NMI            | 2ch | 1ch        | —        | 8             |      |     | 8                            |                            | 2unit      | 100     |         |
| Standard     | MB9BF112N | 144MHz                 | 100            | 128KB+32K | 32KB  | 3(16)             | ○      | 16+NMI            | —   | —          | —        | 8             |      |     | 8                            |                            | 3unit      | 83      |         |
|              | MB9BF114N | 144MHz                 | 100            | 256KB+32K | 32KB  | 3(16)             | ○      | 16+NMI            | —   | —          | —        | 8             |      |     | 8                            |                            | 3unit      | 83      | LQFP100 |
|              | MB9BF115N | 144MHz                 | 100            | 384KB+32K | 64KB  | 3(16)             | ○      | 16+NMI            | —   | —          | —        | 8             |      |     | 8                            |                            | 3unit      | 83      | QFP100  |
|              | MB9BF116N | 144MHz                 | 100            | 512KB+32K | 64KB  | 3(16)             | ○      | 16+NMI            | —   | —          | —        | 8             |      |     | 8                            |                            | 3unit      | 83      |         |
|              | MB9BF112R | 144MHz                 | 120            | 128KB+32K | 32KB  | 3(16)             | ○      | 16+NMI            | —   | —          | —        | 8             |      |     | 8                            |                            | 3unit      | 103     |         |
|              | MB9BF114R | 144MHz                 | 120            | 256KB+32K | 32KB  | 3(16)             | ○      | 16+NMI            | —   | —          | —        | 8             |      |     | 8                            |                            | 3unit      | 103     | LQFP120 |
|              | MB9BF115R | 144MHz                 | 120            | 384KB+32K | 64KB  | 3(16)             | ○      | 16+NMI            | —   | —          | —        | 8             |      |     | 8                            |                            | 3unit      | 103     |         |
|              | MB9BF116R | 144MHz                 | 120            | 512KB+32K | 64KB  | 3(16)             | ○      | 16+NMI            | —   | —          | —        | 8             |      |     | 8                            |                            | 3unit      | 103     |         |
|              | MB9BF116S | 144MHz                 | 144            | 512KB     | 64KB  | 3(24)             | —      | 32+NMI            | —   | —          | —        | 8             |      |     | 16                           |                            | 3unit      | 122     |         |
|              | MB9BF117S | 144MHz                 | 144            | 768KB     | 96KB  | 3(24)             | —      | 32+NMI            | —   | —          | —        | 8             |      |     | 16                           |                            | 3unit      | 122     | LQFP144 |
|              | MB9BF118S | 144MHz                 | 144            | 1MB       | 128KB | 3(24)             | —      | 32+NMI            | —   | —          | —        | 8             |      |     | 16                           |                            | 3unit      | 122     |         |
|              | MB9BF116T | 144MHz                 | 176            | 512KB     | 64KB  | 3(32)             | —      | 32+NMI            | —   | —          | —        | 8             |      |     | 16                           |                            | 3unit      | 154     |         |
|              | MB9BF117T | 144MHz                 | 176            | 768KB     | 96KB  | 3(32)             | —      | 32+NMI            | —   | —          | —        | 8             |      |     | 16                           |                            | 3unit      | 154     | LQFP176 |
|              | MB9BF118T | 144MHz                 | 176            | 1MB       | 128KB | 3(32)             | —      | 32+NMI            | —   | —          | —        | 8             |      |     | 16                           |                            | 3unit      | 154     |         |
| USB          | MB9BF312N | 144MHz                 | 100            | 128KB+32K | 32KB  | 3(16)             | ○      | 16+NMI            | —   | 1ch        | —        | 8             |      |     | 8                            |                            | 3unit      | 83      |         |
|              | MB9BF314N | 144MHz                 | 100            | 256KB+32K | 32KB  | 3(16)             | ○      | 16+NMI            | —   | 1ch        | —        | 8             |      |     | 8                            |                            | 3unit      | 83      | LQFP100 |
|              | MB9BF315N | 144MHz                 | 100            | 384KB+32K | 64KB  | 3(16)             | ○      | 16+NMI            | —   | 1ch        | —        | 8             |      |     | 8                            |                            | 3unit      | 83      | QFP100  |
|              | MB9BF316N | 144MHz                 | 100            | 512KB+32K | 64KB  | 3(16)             | ○      | 16+NMI            | —   | 1ch        | —        | 8             |      |     | 8                            |                            | 3unit      | 83      |         |
|              | MB9BF312R | 144MHz                 | 120            | 128KB+32K | 32KB  | 3(16)             | ○      | 16+NMI            | —   | 1ch        | —        | 8             |      |     | 8                            |                            | 3unit      | 103     |         |
|              | MB9BF314R | 144MHz                 | 120            | 256KB+32K | 32KB  | 3(16)             | ○      | 16+NMI            | —   | 1ch        | —        | 8             |      |     | 8                            |                            | 3unit      | 103     | LQFP120 |
|              | MB9BF315R | 144MHz                 | 120            | 384KB+32K | 64KB  | 3(16)             | ○      | 16+NMI            | —   | 1ch        | —        | 8             |      |     | 8                            |                            | 3unit      | 103     |         |
|              | MB9BF316R | 144MHz                 | 120            | 512KB+32K | 64KB  | 3(16)             | ○      | 16+NMI            | —   | 1ch        | —        | 8             |      |     | 8                            |                            | 3unit      | 103     |         |
|              | MB9BF316S | 144MHz                 | 144            | 512KB     | 64KB  | 3(24)             | —      | 32+NMI            | —   | 1ch        | —        | 8             |      |     | 16                           |                            | 3unit      | 122     | LQFP144 |
|              | MB9BF317S | 144MHz                 | 144            | 768KB     | 96KB  | 3(24)             | —      | 32+NMI            | —   | 1ch        | —        | 8             |      |     | 16                           |                            | 3unit      | 122     |         |
| MB9BF318S    | 144MHz    | 144                    | 1MB            | 128KB     | 3(24) | —                 | 32+NMI | —                 | 1ch | —          | 8        |               |      | 16  |                              | 3unit                      | 122        |         |         |