



*“ World’s Excellent
Semiconductor Company ”*

MCU Selection Guide

KEC

2007. Jan

PART I.

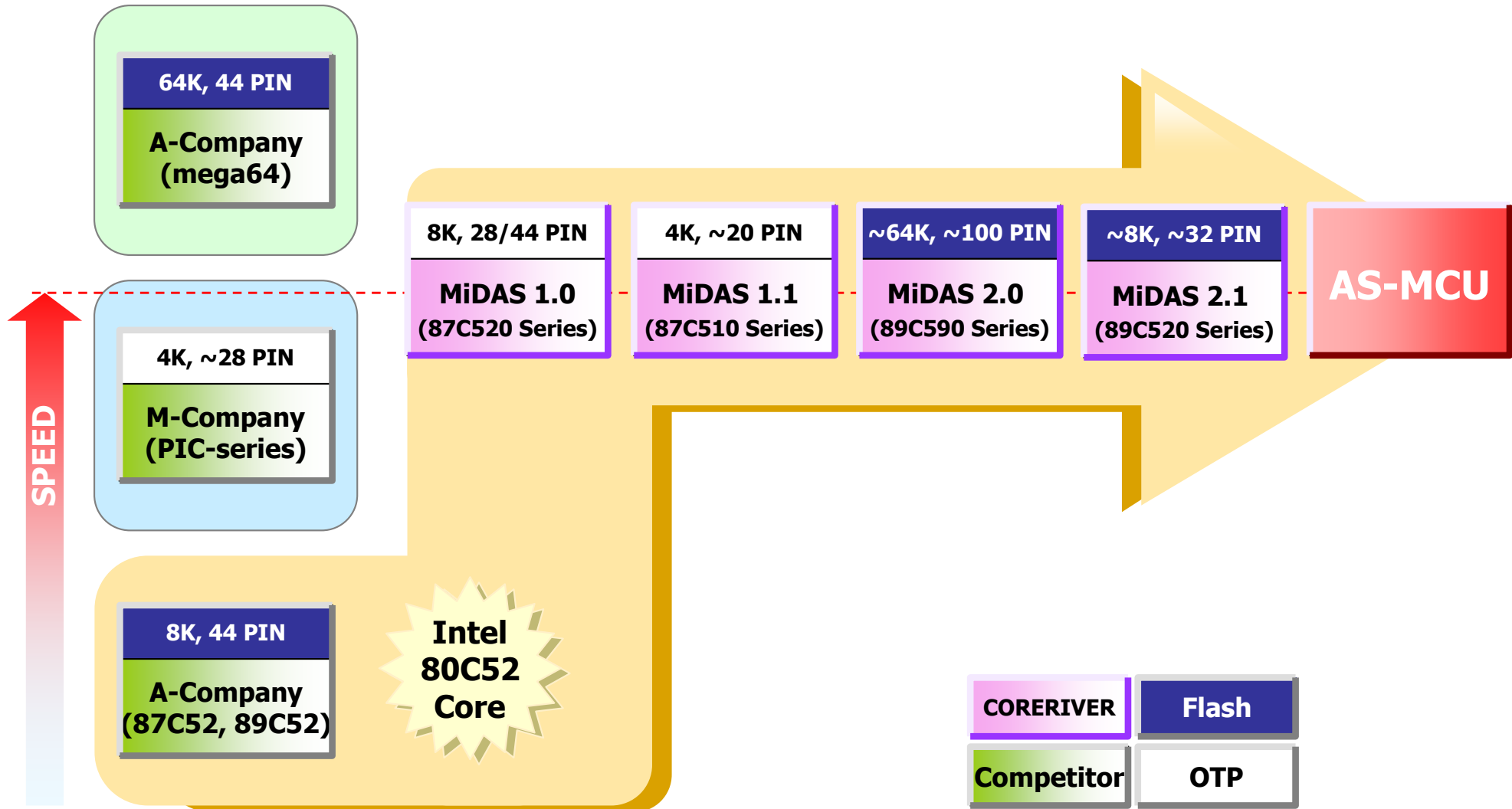
Introduce for MCU Products

Comparison Table

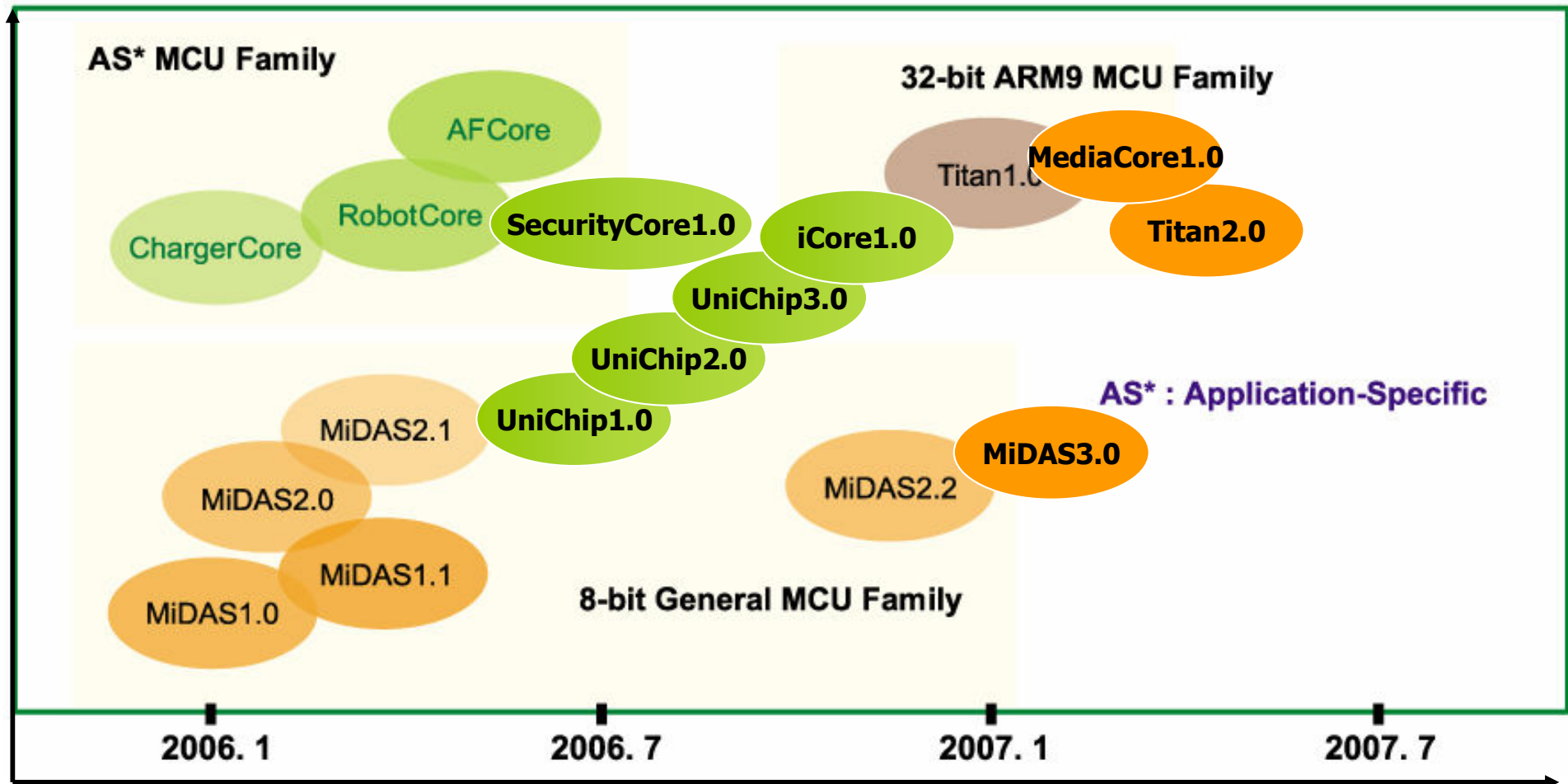
◆ The fastest instruction execution time in the world

Instruction	KIM80C510 (KEC)	W77C32 (Winbond)	DS80C320 (Maxim)	87C52 (Intel)
MUL AD DIV AB	12 clocks	20 clocks	20 clocks	48 clocks
MOVC A, @A+PC MOVC A, @A+DPTR	8 clocks	8 clocks	12 clocks	24 clocks
JMP @A+DPTR	8 clocks	8 clocks	12 clocks	24 clocks
RET RETI	8 clocks	8 clocks	16 clocks	24 clocks
INC DPTR DEC DPTR	4 clocks 4 clocks	8 clocks 8 clocks	12 clocks Not exist	24 clocks Not exist
Others	same	same	same	-

Speed Comparison of MCU Products



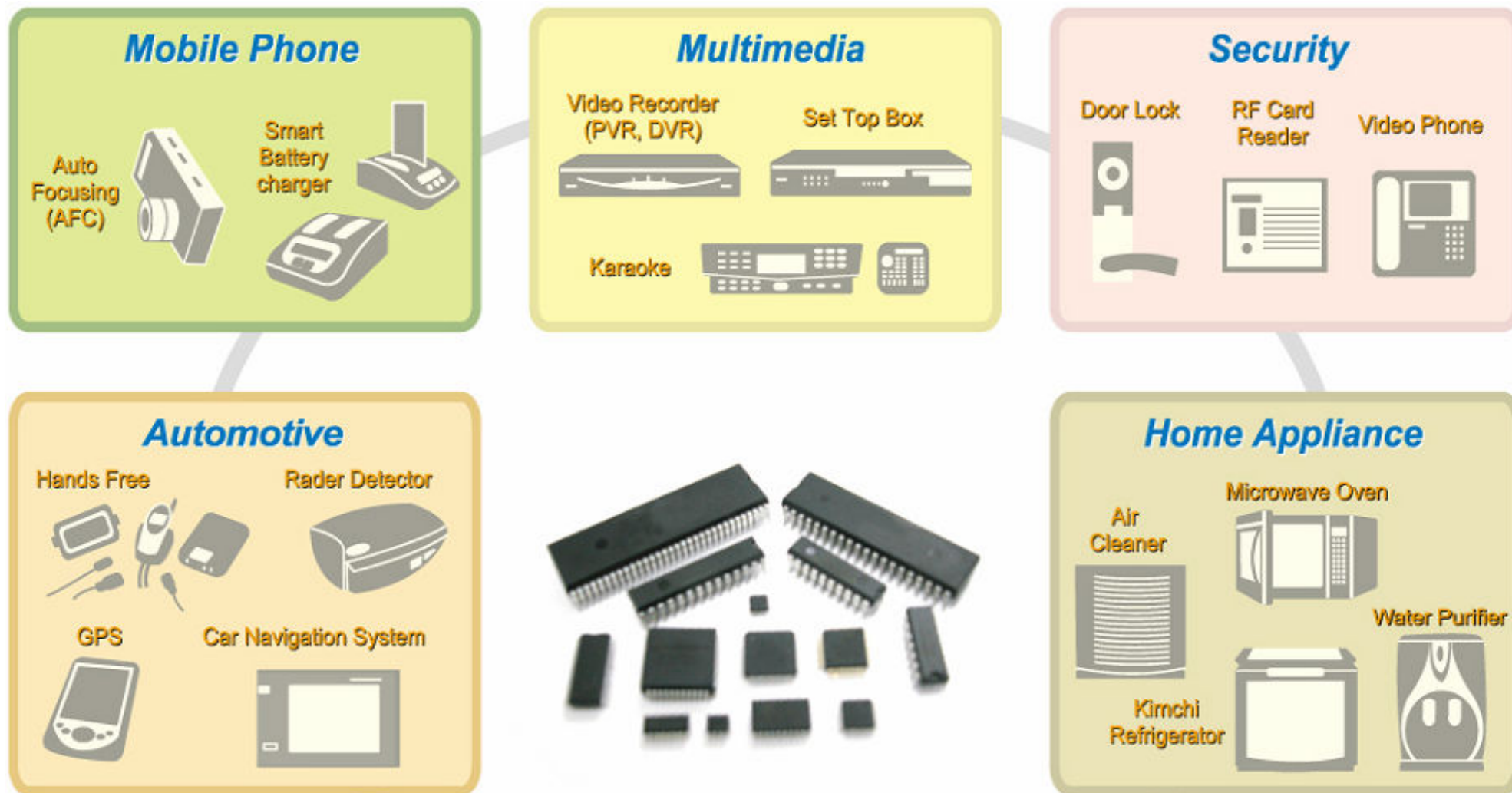
Roadmap of KEC MCU Products



PART II.

MCU Applications

Application with MCU Families



Products for Digital STB

RF Diodes for Tuner

Varactor Diodes

. For TV Tuning

PIN Diodes

. RF Switch
. Attenuator

Microcontroller

MiDAS1.1 Family

. 8-bit, 4KB, OTP Type

MiDAS2.1 Family

. 8-bit, 8KB, FLASH Type

Voltage Detectors

KIA70XX series

. Active Low Type

. For MCU Reset Function

KIA74XX Series

. Active High Type

Devices for SMPS

Bridge Diodes

Power TR's

Power SBD's

Power FRD's

Voltage Stabilizer

KIA431

. Vref = 2.495V
. B(0.5%), A(1%), None (2.2%)
. TO-92, SOT-89, TSM
. Shunt Regulator for SMPS

KIA2431 Series

. Vref = 1.240V
. B(0.5%), A(1%), None(1.5%)

Switching Diodes

. Surfaced Mounted Type
. General Purpose Switching



General Purpose TR

General Purpose Switching

. 2N3904 (3906) : 40V/0.2A
. KTN2222A (2907) : 40V/0.6A
. KTN2907A : -60V/-0.6A
. KTC3875S (1504S) : 50V/0.15A
. BC Series

BRT's

Logic IC (L-MOS)

KIC7S(W)XX series

. High Speed

KIA7S(W)ZXX Series

. Super High Speed

ESD Protector

TVS Diodes

. Surge Protector

. Very High Peak Power

. Various Junction Capacitance

Zener Diodes

Quasi-LDO

KIA1117 series

. Low Load/Line Regulation
. TO-220IS, DPAK-3, SOT-223
. For Power Source of Tuner,

Voltage Regulators

KIA78XX series

. Standard Regulator
. TO-220IS, DPAK

KIA78RXX Series

. ON/OFF Control
. TO-220IS-4, DPAK-5

OP-amp

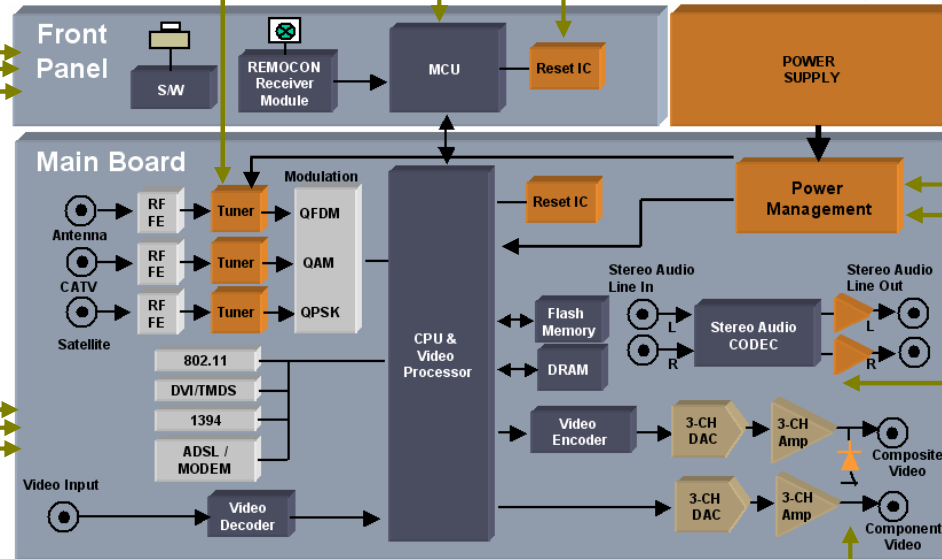
KIA358

. Dual OP-AMP

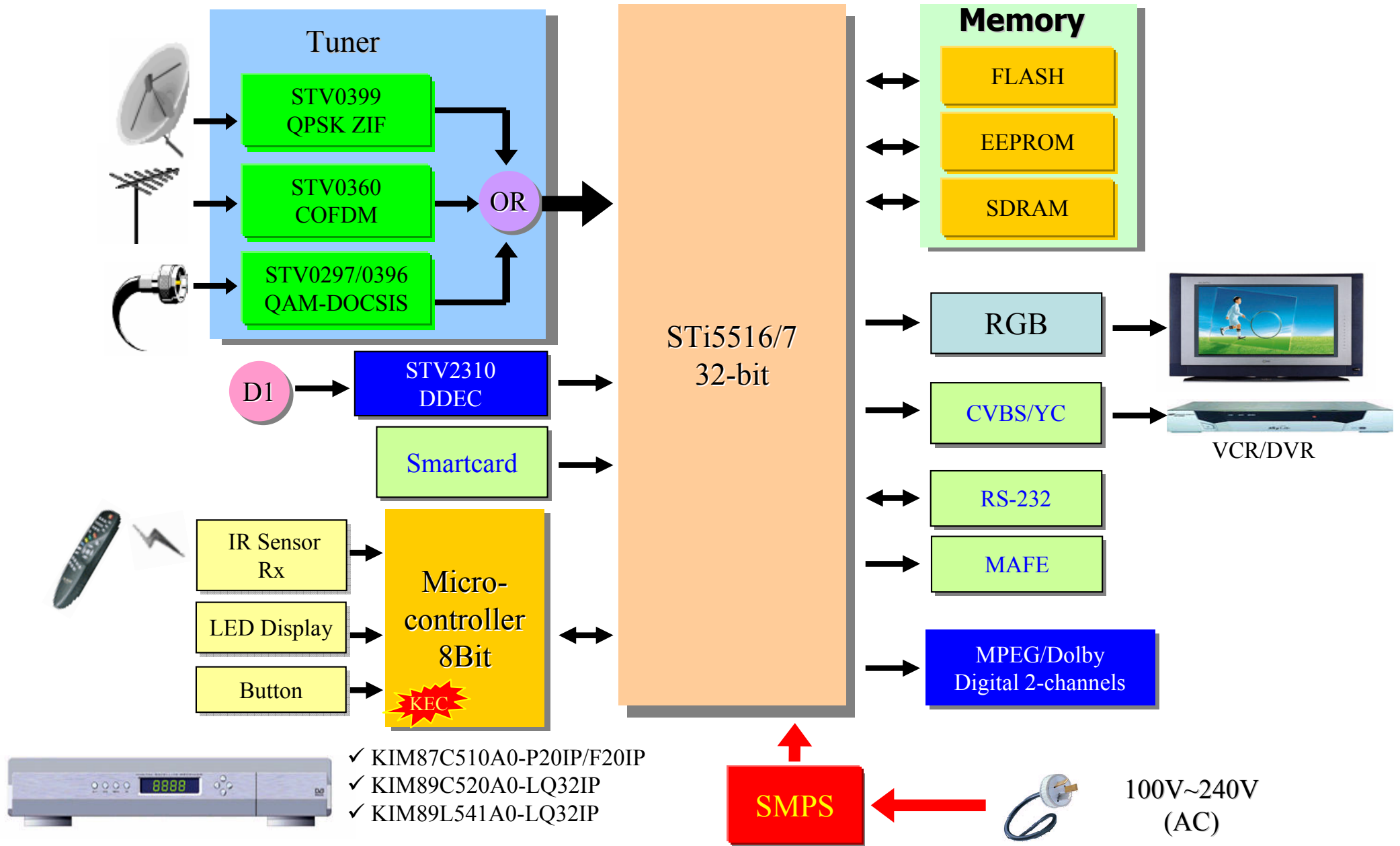
KIA4558

. Low Noise OP-AMP

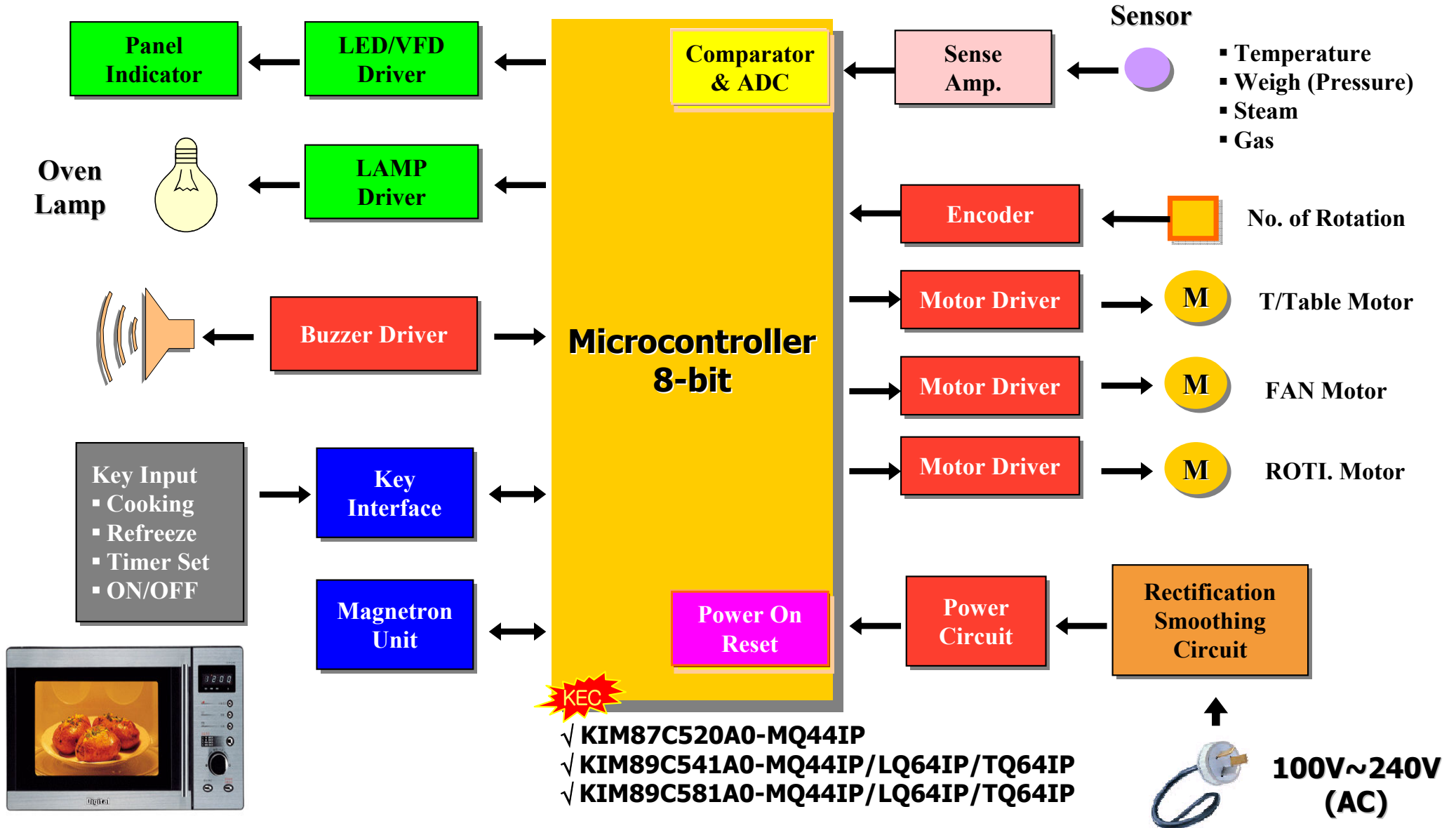
. For AUDIO Signal Amplifier



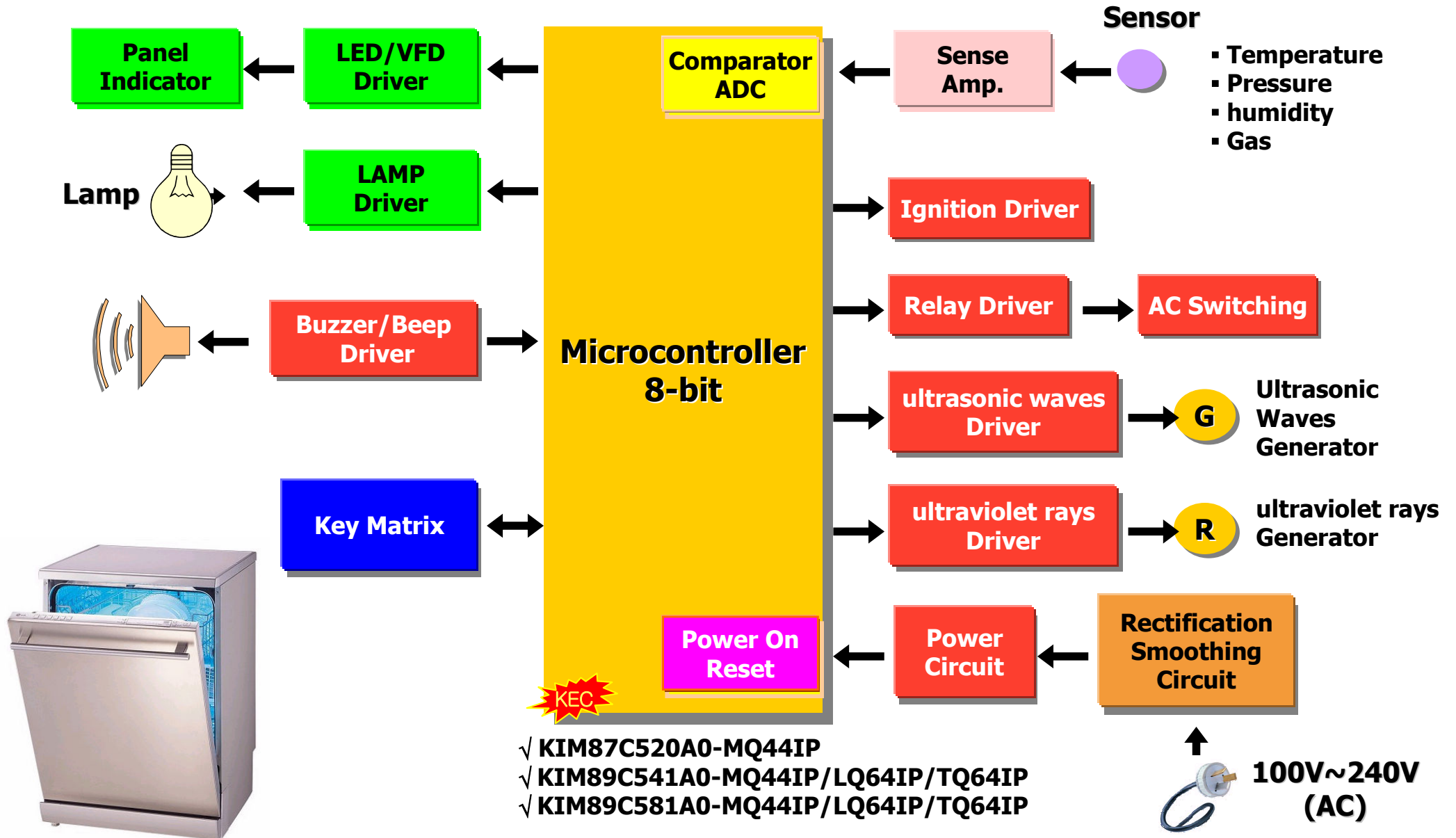
Low Cost STB Block Diagrams (ST Micronics Solution)



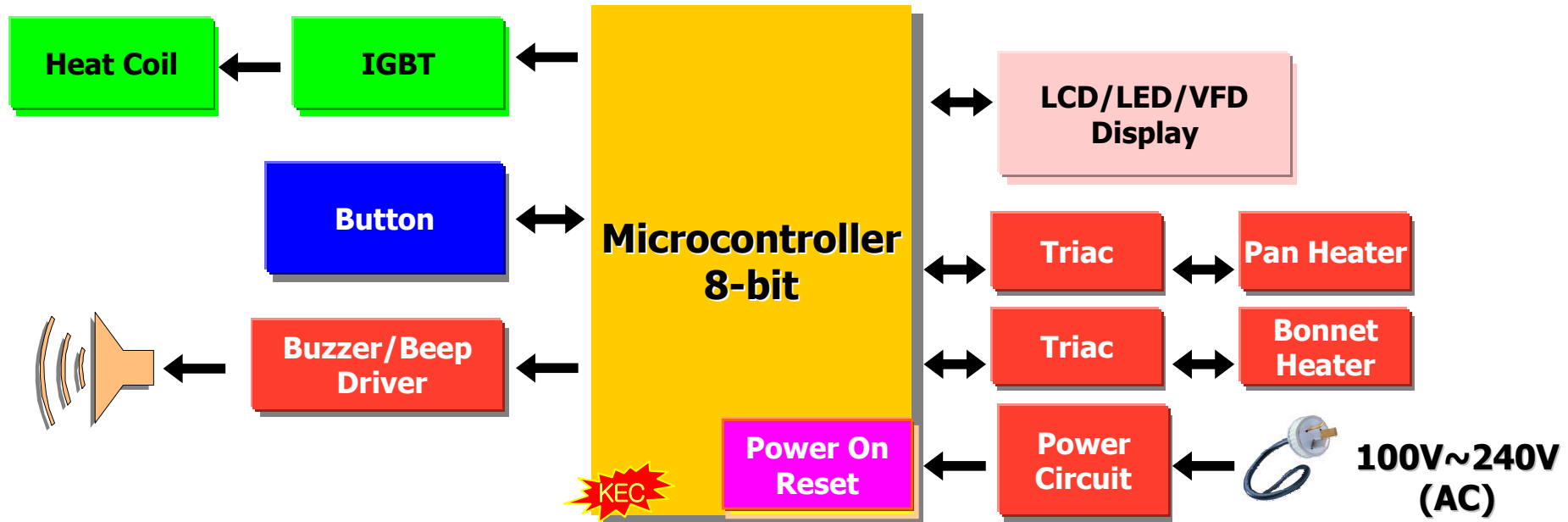
Microwave Oven Block Diagrams



Dishwasher Block Diagrams White Goods



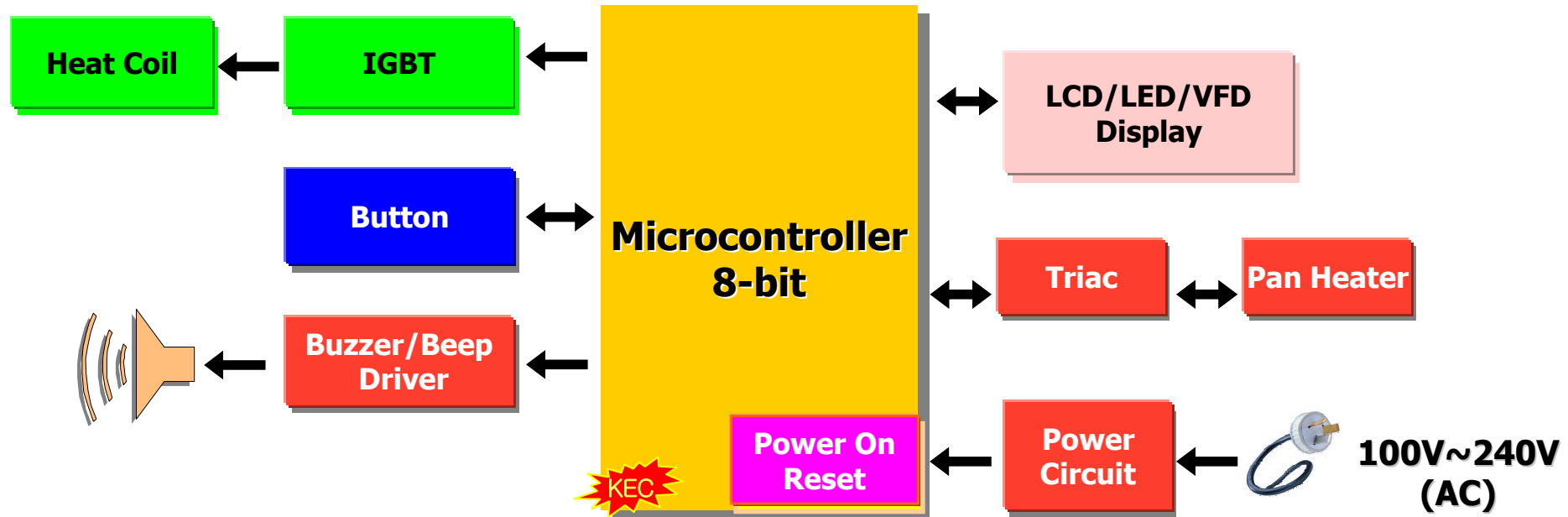
IH RICE COOKER Block Diagram



- √ KIM87C520A0-MQ44IP
- √ KIM89C541A0-MQ44IP/LQ64IP/TQ64IP
- √ KIM89C581A0-MQ44IP/LQ64IP/TQ64IP

- √ IGBT : Insulate Gate Bipolar Transistor
- √ LED : Light Emitting Diode
- √ LCD : Liquid Crystal Display

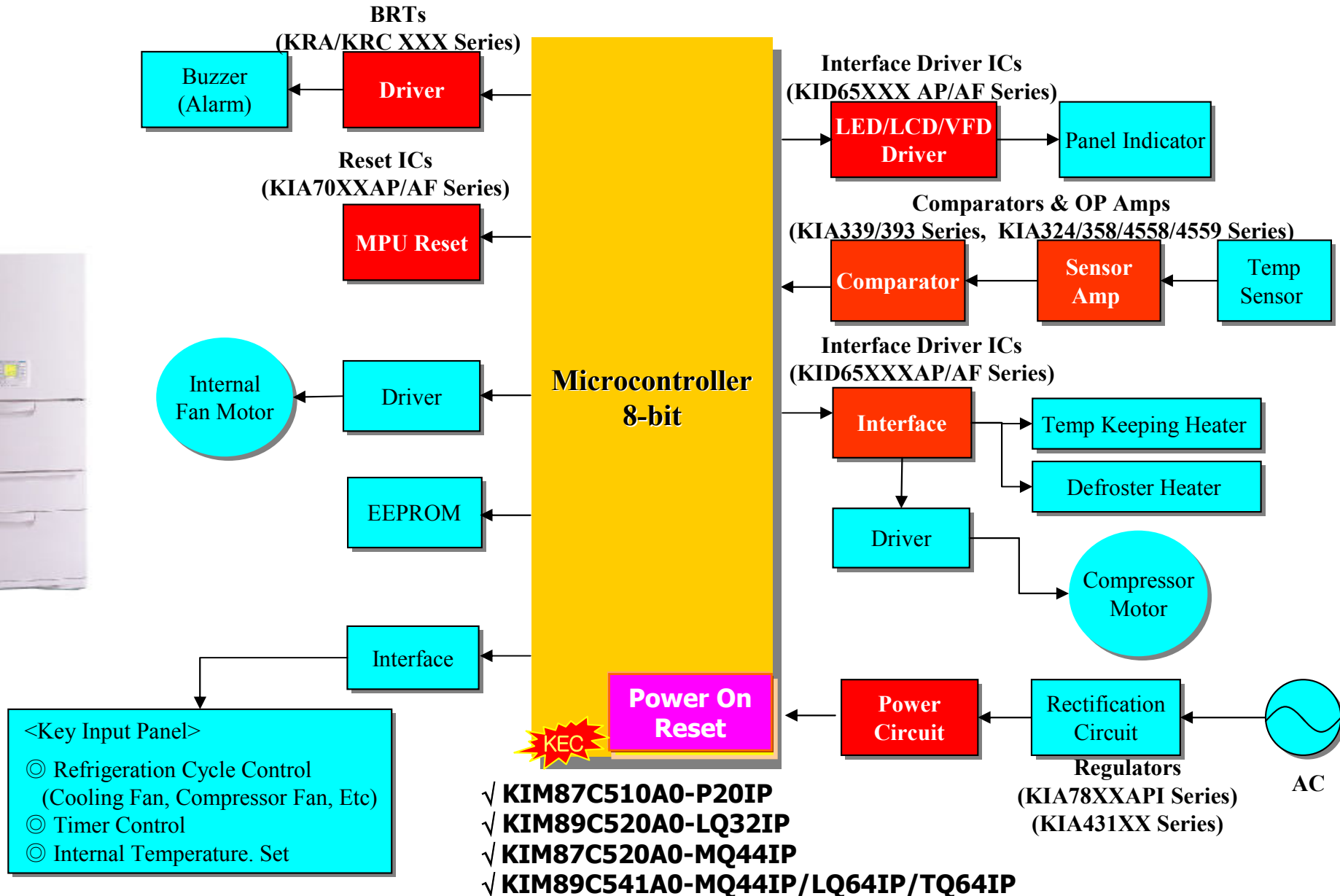
IH COOKER Block Diagram



- ✓ KIM87C510A0-P20IP
- ✓ KIM89C520A0-LQ32IP
- ✓ KIM87C520A0-MQ44IP
- ✓ KIM89C541A0-MQ44IP/LQ64IP/TQ64IP

- ✓ IGBT : Insulate Gate Bipolar Transistor
- ✓ LED : Light Emitting Diode
- ✓ LCD : Liquid Crystal Display

REFRIGERATOR Block Diagram



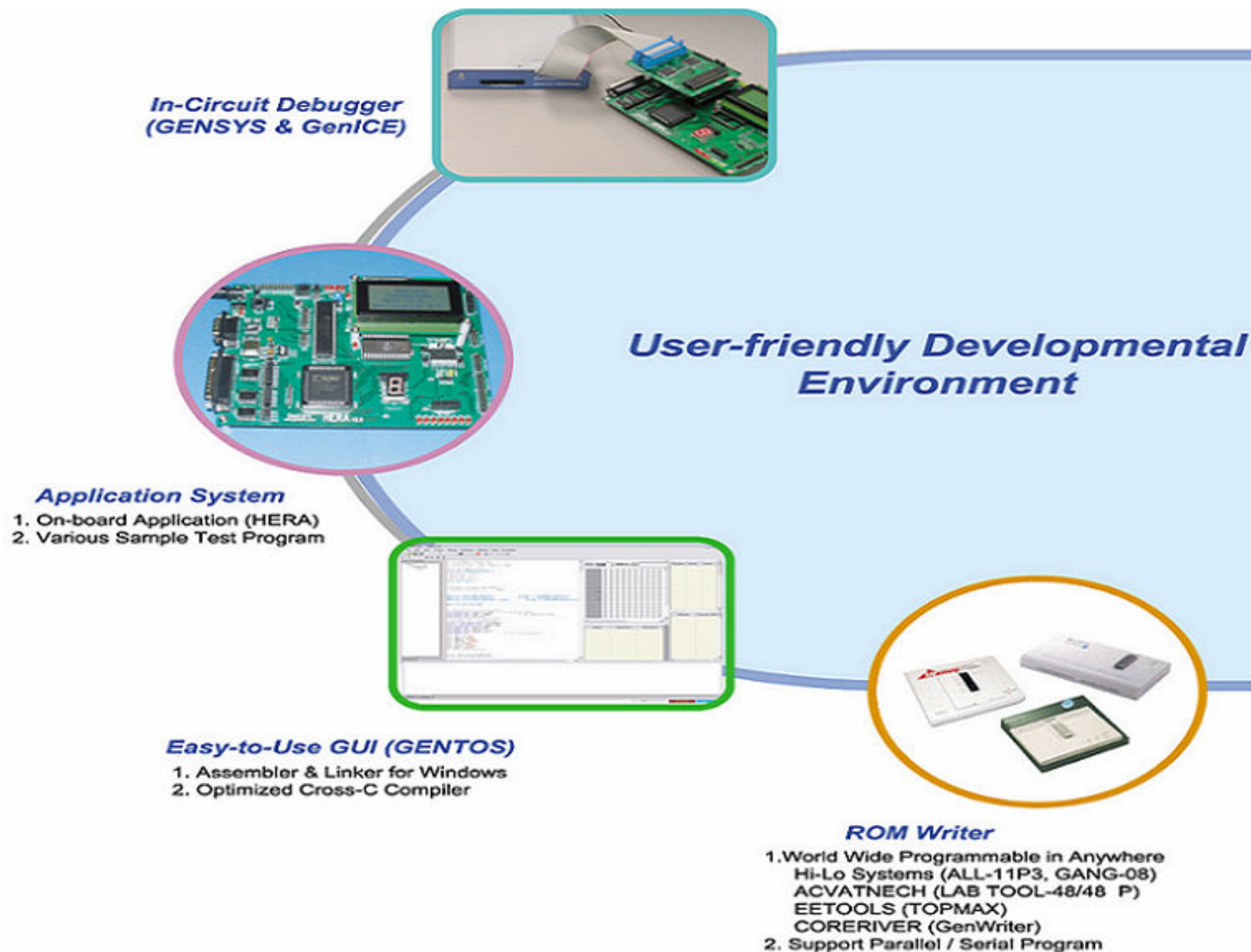
PART III.

MCU Support

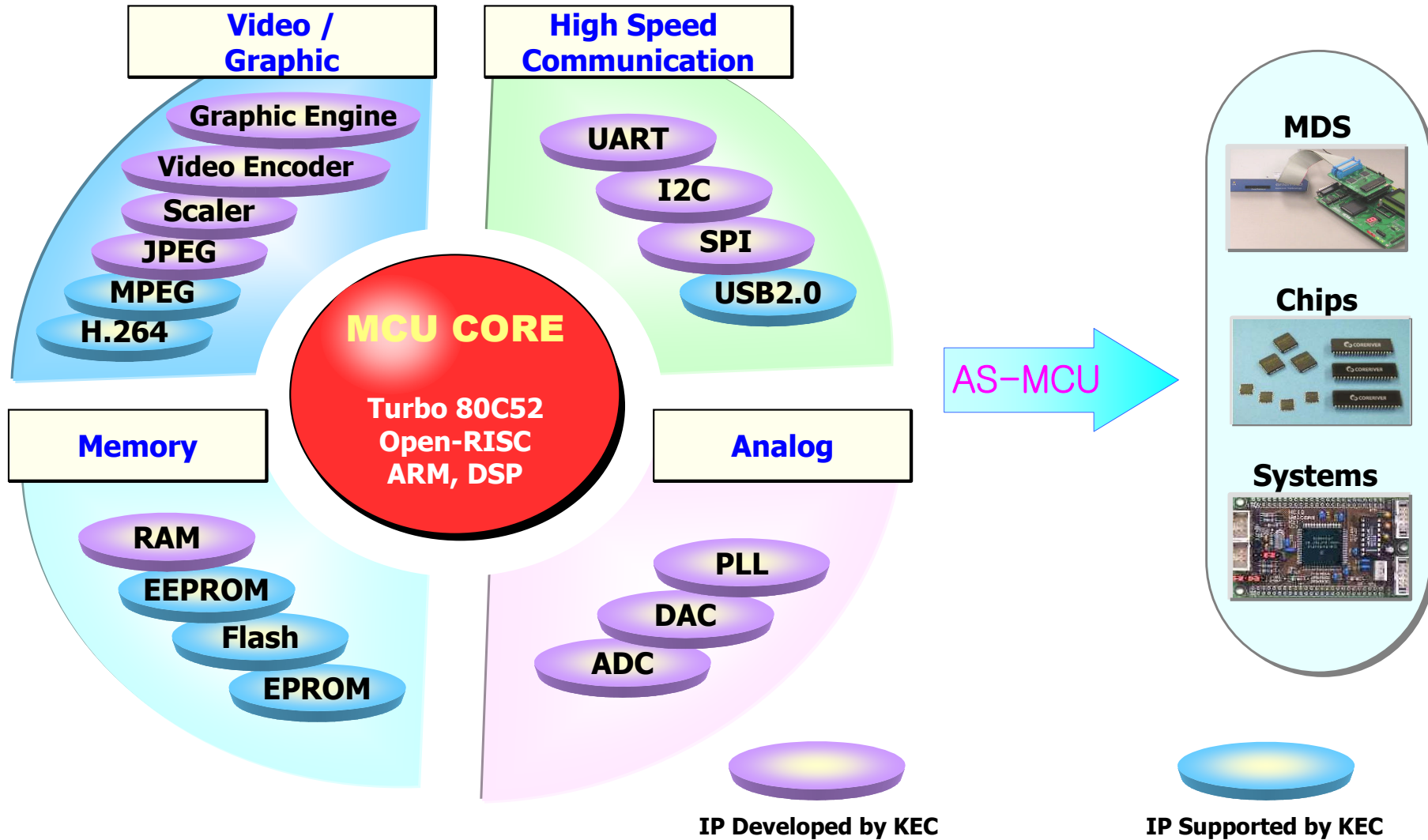
Support Tools

Product	Feature	Available Time
GenSys52	System Debugging Tool for MiDAS1.X (H/W) - Clock : 1MHz ~ 20MHz - Full Range PC and H/W breakpoints - POD Socket : 40-pin DIP/20-pin SPDIP - Adaptors : 44-pin PLCC, 28-pin DIP	Now
GENTOS	System Debugging Tool for MiDAS Family (S/W) - Full Range PC and H/W breakpoints	Now
GenICE52 GenICE52 II	ISP Tool ISP/IAP/EJTAG Tool	Now
HERA_K2.1 HERA_K2000 HERA_T2K HERA Jr.	Application Board for MiDAS1.X Family Application Board for MiDAS1.X Family and MiDAS2.0 Family Application Board for MiDAS1.X Family and MiDAS2.0 Family (New Version) Application Board for MiDAS1.1 Family	Now
GenWriter S1000 GenWriter G1000	Single ROM Writer Gang ROM Writer	Now

Supporting Tools



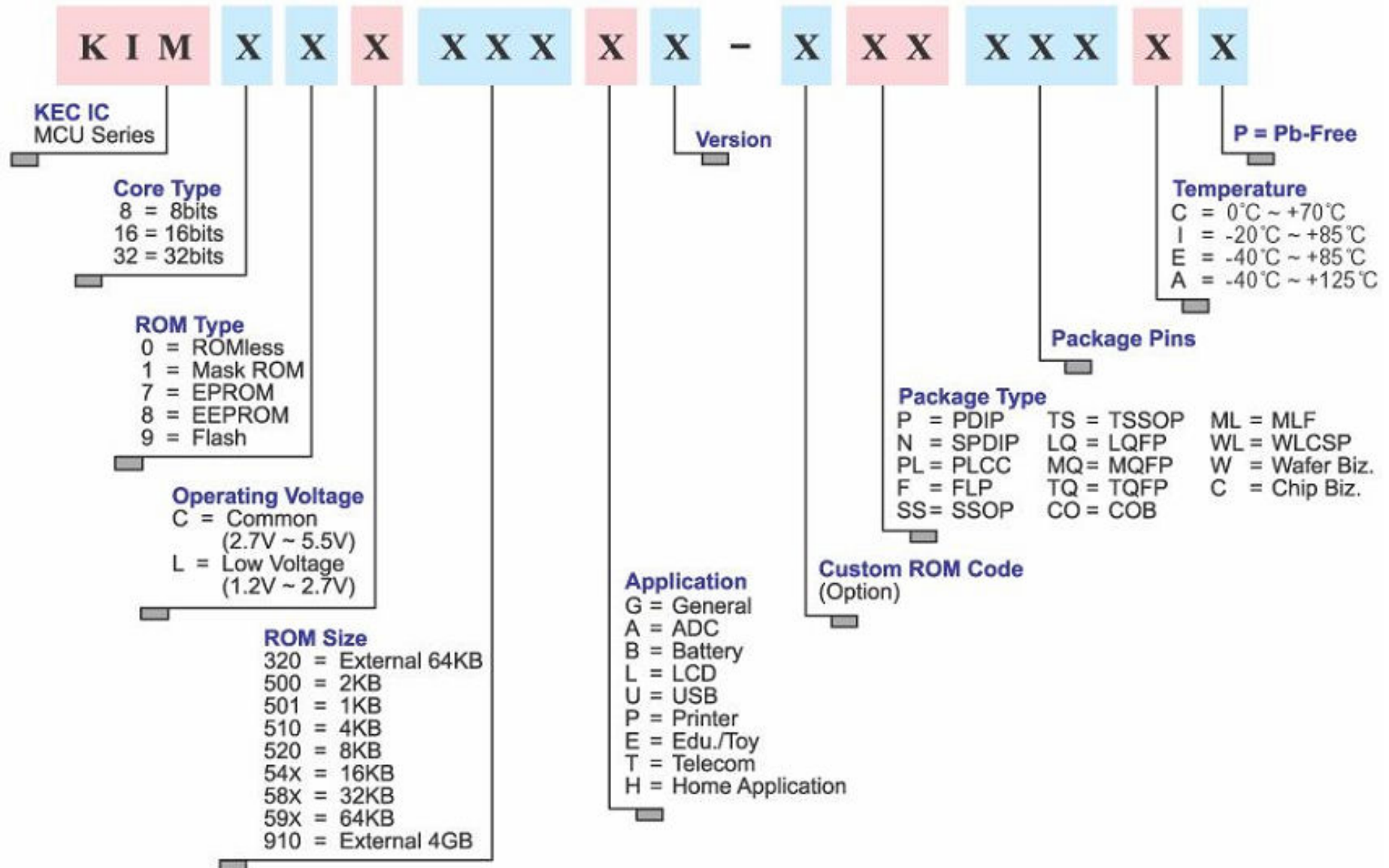
AS-MCU (Application Specific MCU)



PART IV.

MCU Product Line up

Product Numbering System



KEC Product List(1)

◆ MiDAS Family (Turbo 80C52-based General Core)

Product (Family/Series)		Mask-ROM [Byte]	FLASH [Byte]	EEPROM [Byte]	EPROM [Byte]	RAM [Byte]	Volt [V]	Freq. [MHz]	T/C [16bits]	Serial I/O	WDT	ADC [bit x ch]	PWM [bitxch]	Package	Others	Available Time
MiDAS1.0	KIM87C520A0	-	-	-	8k	256	2.7~5.5	40 (20)	3	1 UART	1	9 x 4	8 x 2	44-MQFP/PLCC 40-PDIP 28-SPDIP/SOIC	LVD POR	Now
	KIM81C520A0	8k	-	-	-											
	KIM80C320A0	ROMless														
MiDAS1.1	KIM87C510A0	-	-	-	4k	128	2.4~5.5	20 (10)	2	1 UART	1	10 x 12 10 x 8 10 x 2 or 3	8 x 1	20-SPDIP/SOIC 16-SPDIP/SOIC 8-SPDIP/SOIC	LVD POR RING Osc.	Now
	KIM81C510A0	4k	-	-	-											
	KIM81C500A0	2k	-	-	-											
	KIM87C510A1	-	-	-	4k											
	KIM81C510A1	4k	-	-	-											
	KIM81C500A1	2k	-	-	-											
MiDAS2.0	KIM89C591A0	-	62k	2k	-	2k	3.0~3.6	40	3	2 UART	1	10 x 8	8 x 12	100-TQFP 64-TQFP/PDIP 44-MQFP/PLCC	ISP/IAP EJTAG LVD POR	Now
	KIM81C591A0	62k	-	2k	-											
	KIM89C581A0	-	30k	2k	-											
	KIM81C581A0	30k	-	2k	-											
	KIM89C541A0	-	14k	2k	-											
	KIM81C541A0	14k	-	2k	-											

KEC Product List(2)

◆ MiDAS Family (Turbo 80C52-based General Core)

Product (Family/Series)		Mask-ROM [Byte]	FLASH [Byte]	EEPROM [Byte]	EPROM [Byte]	RAM [Byte]	Volt [V]	Freq. [MHz]	T/C [16bits]	Serial I/O	WDT	ADC [bit x ch]	PWM [bitxch]	Package	Others	Available Time
MIDAS2.1	KIM89C520A0	-	7k	1k	-	512	2.2~5.5	20 (12)	2	1 UART	1	10 x 28 10 x 24	8 x 1	32-LQFP/FLP(SOIC) 28-DIP/FLP(SOIC)	ISP/IAP I ² C EJTAG LVD POR	Now
	KIM81C520A0	7k	-	1k	-											
	KIM89C511A0	-	3k	1k	-											
	KIM81C511A0	3k	-	1k	-											
MIDAS2.2	KIM89C510A0	-	4k	60	-	128	2.2~5.5	20 (10)	2	1 UART	1	10 x 16 10 x 12 10 x 4	16 x 2	20-DIP/FLP(SOIC) 16-DIP/FLP(SOIC) 8-DIP/FLP(SOIC)	ISP/IAP LVD POR RING Osc.	'07.Q1
	KIM81C510A0	4k	-	60	-											
	KIM89C510A0	-	2k	60	-	64										
	KIM81C510A0	2k	-	60	-											
	KIM89C501A0	-	1k	60	-	32										
	KIM81C501A0	1k	-	60	-											
MIDAS3.0	KIM89L591A0	-	62k	2k	-	16k + 256	1.6~2.0 (Core) 3.0~3.6 (I/O)	100	3	2 UART	1	10 x 32 10 x 21	8 x 10 Or 16 x 5	44-MQFP 32-LQFP/FLP(SOIC)	ISP/IAP EJTAG LVD POR	'06.Q4
	KIM81L591A0	62k	-	2k	-											
	KIM89L581A0	-	30k	2k	-											
	KIM81L581A0	30k	-	2k	-											
	KIM89L541A0	-	14k	2k	-											
	KIM81L541A0	14k	-	2k	-											

New products are listed in **bold red**.

KEC Product List(3)

◆ Titan Family (32-bit ARM-based General Core)

Product (Family/Series)	Mask-ROM [Byte]	FLASH [Byte]	EEPROM [Byte]	EPROM [Byte]	RAM [Byte]	Volt [V]	Freq. [MHz]	T/C [32bits]	Serial I/O	WDT	ADC [bit x ch]	PWM [bit x ch]	Package	Others	Available Time
Titan1.0					128K	1.6~2.0 (Core) 3.0~3.6 (I/O)	150	4	4 UART 2 SPI I ² C	1	10 x 4	32 x 4	256-TQFP	USB2.0 JTAG PLL Graphic- engine JPEG- engine	'07.Q1
Titan2.0	KIM329C910A0 (ARM926EJ)		1M		128K	1.6~2.0 (Core) 3.0~3.6 (I/O)	150	4	4 UART 2 SPI I ² C	1	10 x 4	32 x 4	256-TQFP	USB2.0 JTAG PLL DDR SDRAM Interface	'07.Q1
	KIM329C920A0 (ARM926EJ)		2M												
	KIM329C940A0 (ARM926EJ)		4M												

◆ ChargerCore Family (Application Specific MCU for Battery Chargers)

Product	Feature	Volt [V]	Package	Others	Available Time
ChargerCore1.0	Optimized Application Specific MCU (AS-MCU) for Battery Charger Application	2.7~5.5	8-SOIC	LVD POR Ring OSC	Now

New products are listed in **bold red**.

KEC Product List(4)

◆ Unichip Family (Application Specific MCU for E-Key and E-Lock)

Product	FLASH [Byte]	EEPROM [Byte]	EPROM [Byte]	RAM [Byte]	Volt [V]	Freq. [MHz]	T/C [16bits]	Serial I/O	WDT	ADC [bit x ch]	PWM [bit x ch]	Package	Others	Available Time
UniChip1.0	-	-	2K	64	2.2~5.5	2 (37KHz)	1	-	-	-	-	6-WLCSP	LVD, POR RNG, AFE	Now
UniChip2.0	7K	1K	-	128	2.2~5.5	20 (12)	2	1UART	1	10 x 28	8 x 1	32-MLF 32-LQFP	LVD, POR RNG, ISP IAP, EJTAG	Now
UniChip3.0	7K	1K	-	256	2.2~5.5	20 (12)	2	1 UART	1	10 x 19	8 x 1	32-MLF	LVD, POR RTC, ISP, IAP, EJTAG	Now

◆ AFCore Family (Application Specific MCU for Auto Focusing Control in Camera Phones)

Product	Feature	Volt [V]	Package	Others	Available Time
AFCore1.0	Optimized Application Specific MCU (AS-MCU) for Auto Focusing Control in Camera Phone	2.2~5.5	32-MLF	ISP, IAP EJTAG LVD, POR Auto Focusing Controller	Now

*New products are listed in **bold red**.*

KEC Product List(5)

◆ SecurityCore Family (Application Specific MCU for Security System)

Product	Feature	Volt [V]	Package	Others	Available Time
SecurityCore1.0	Optimized Application Specific MCU (AS-MCU) for Security System	2.4~5.5	8-SOIC	LVD POR Ring OSC	Now

◆ MediaCore Family (Application Specific MCU for Multimedia System)

Product	Feature	Volt [V]	Package	Others	Available Time
MediaCore1.0	Optimized Application Specific MCU (AS-MCU) for Multimedia System (ARM926EJ, Graphic Engine, JPEG, Video Encoder, Etc.)	1.6~2.0 (Core) 3.0~3.6 (I/O)	256-TQFP	USB2.0 JTAG PLL	Custom

◆ iCore Family (Application Specific MCU for TCP/IP System)

Product	Feature	Volt [V]	Package	Others	Available Time
iCore1.0	Optimized Application Specific MCU (AS-MCU) for TCP/IP System <ul style="list-style-type: none"> - Support ADSL connection (with PPPoE) - Improved & simplified internal register accesses and command operations - TCP, UDP, IP, ARP, ICMP, IGMP, PPPoE, MAC - High Throughput (max. 1Mbps) - 10/100 Base-T Ethernet (Auto detection) - MCU Operation 	1.6~2.0	64-MQFP	ISP/IAP EJTAG LVD, POR	'07. Q1

*New products are listed in **bold red**.*

KEC Product List(6)

◆ TPMS Family (Application Specific MCU for Tire Pressure Monitoring System)

Product	Flash [Byte]	EEPROM [Byte]	RAM [Byte]	Volt [V]	Freq. [Mhz]	T/C [16bits]	Serial I/O	WDT	ADC [bit x ch]	PWM [bit x ch]	I/O Pins	Package	Others	Available Time
TPMS1.0	7K	1K	512	2.2~3.6	20 (12)	2	1 UART	YES	10x12	8x1	21	32-LQFP	ISP, IAP EJTAG LVD, POR TX I/F	Now
TPMS2.0	7K	1K	512	2.2~3.6	20 (12)	2	1 UART	YES	10x12	8x1	21	32-LQFP	ISP, IAP EJTAG LVD, POR TX/RX I/F	Now

◆ RoboCore Family (Application Specific MCU for Robot Control)

Product	Flash [Byte]	EEPROM [Byte]	RAM [Byte]	Volt [V]	Freq. [Mhz]	T/C [16bits]	Serial I/O	WDT	ADC [bit x ch]	PWM [bit x ch]	I/O Pins	Package	Others	Available Time
RoboCore1.0	7K	1K	512	2.2~5.5	20 (12)	2	1 UART	1	10x17	8x1	21	32-MLF 32-LQFP	ISP, IAP EJTAG LVD, POR Motor Driver	Now

◆ RFCore Family

Product22	2	Package	Available Time
RFCore1.0	<ul style="list-style-type: none"> - Output Frequency : 300MHz ~ 500MHz - Output Power : ~ 5dBm - Output Data Mode : OOK, FSK - FSK carrier deviation : ~100KHz - Lock Time : ~500us - Total Current : ~15mA - Operating Voltage : 2.2 ~ 3.6V 	28-FLP(SOIC)	Now

New products are listed in **bold red**.

Selected Package Option for KEC MCU

Unit [mm]

