



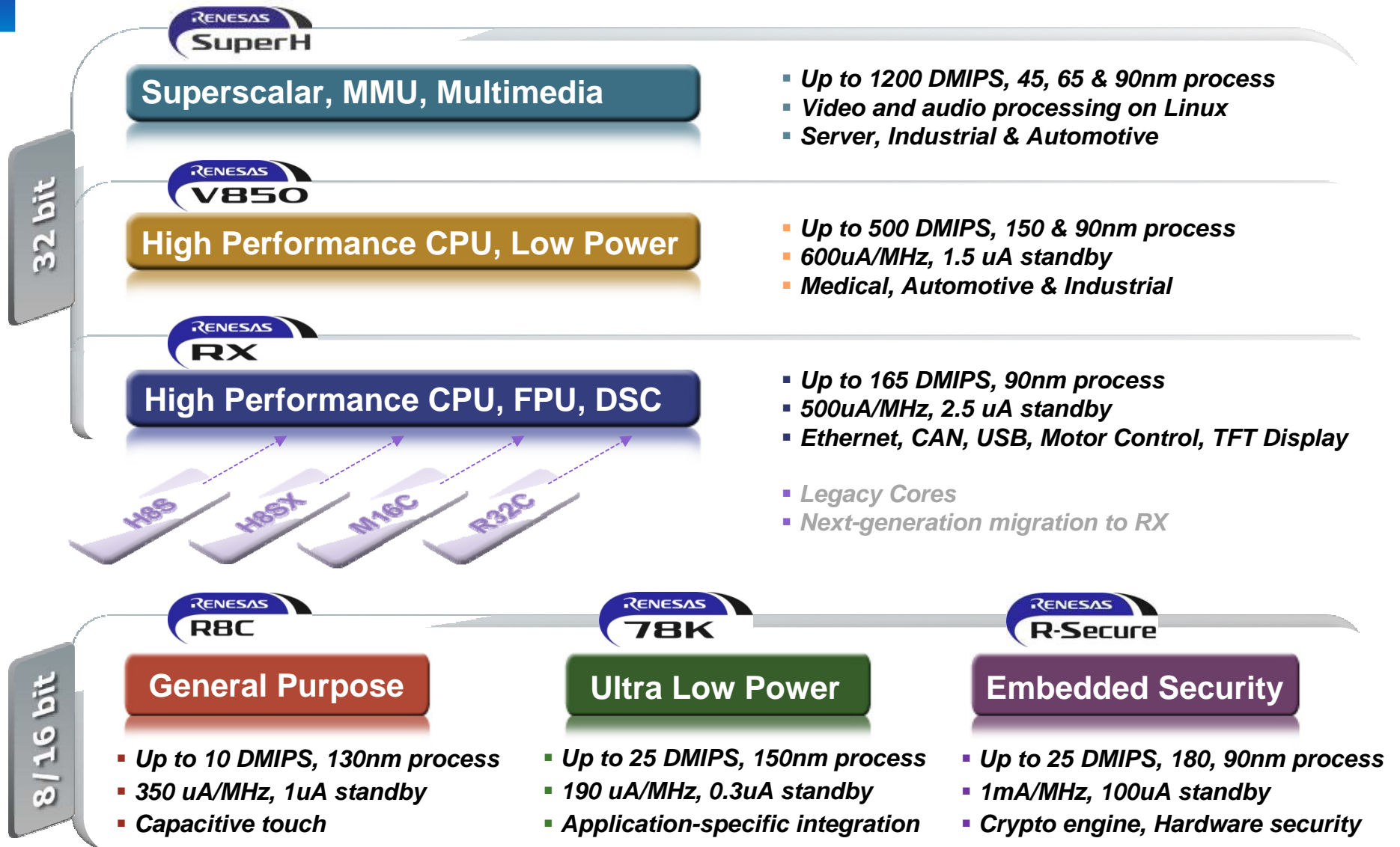
SH7260 Series MPUs

March 2011



Renesas Electronics America Inc.

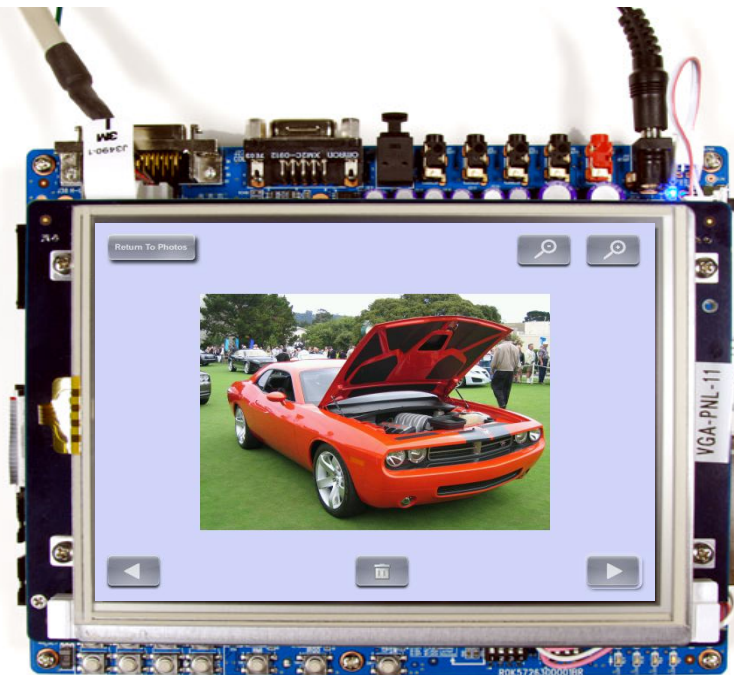
Microcontroller and Microprocessor Line-up



SH7260 Series



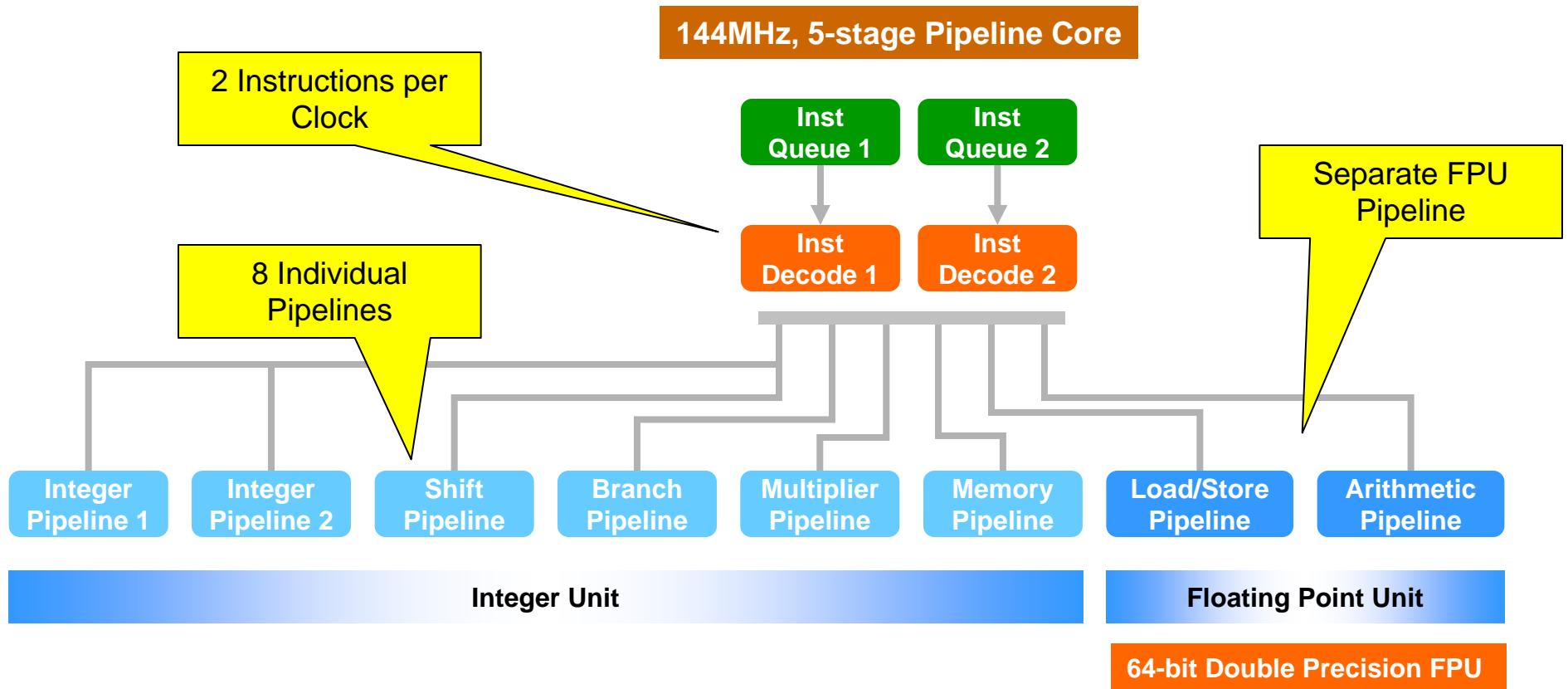
**Ideal for Human Machine Interface (HMI) Applications
Supports Rich GUI and Digital Audio**



Key Features - SH7260 Series MPUs

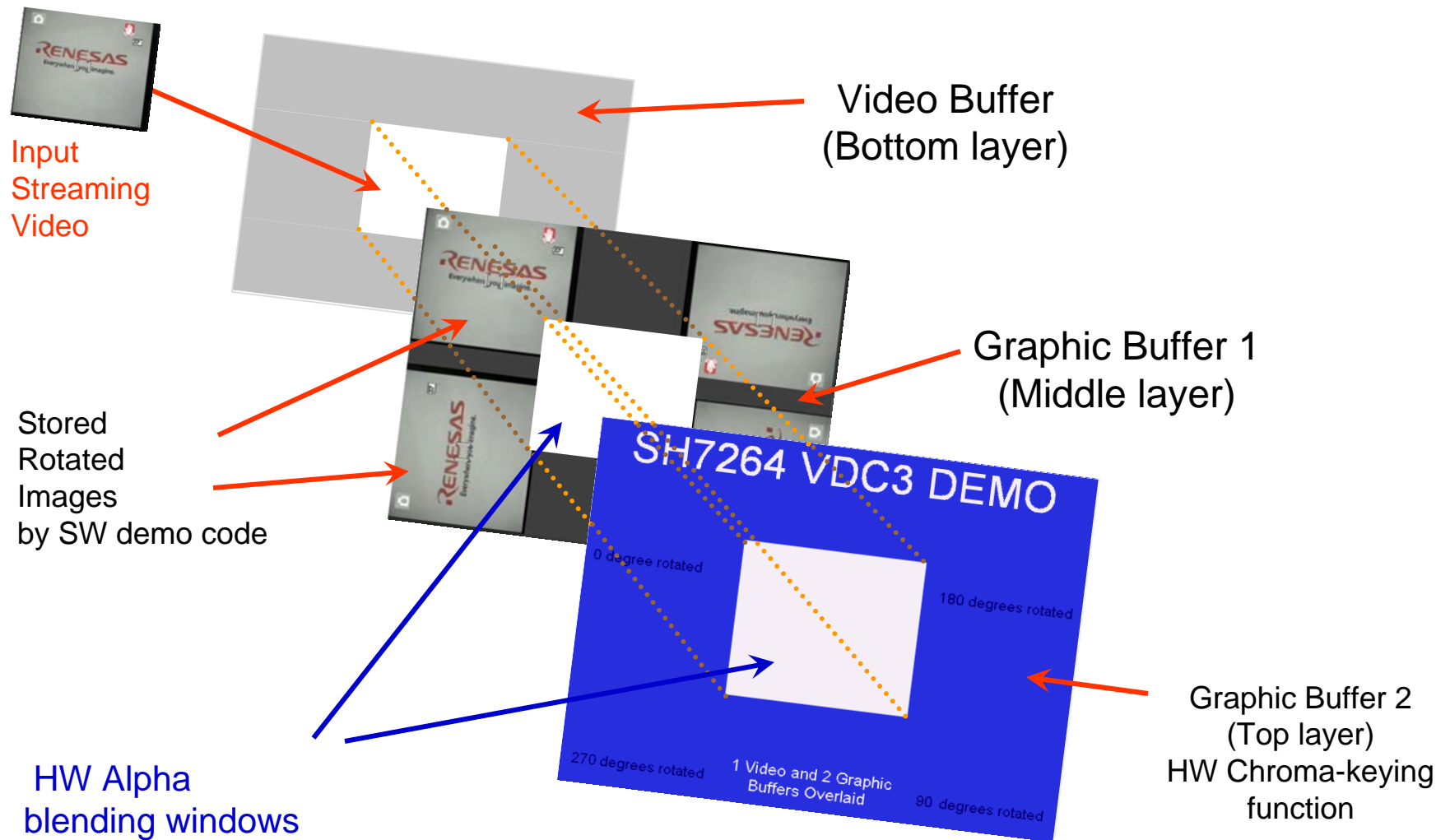
- High Performance Superscalar RISC Core operating at 2.0 Drystone Mips/MHz up to 144 MHz with Double Precision FPU
- Key Features to support Rich GUI
 - LCD Controller up to VGA resolution with video interface, hardware alpha blending and chrome shift keying
 - Large embedded SRAM up to 1.5MB
 - For frame buffers or code so no external SDRAM required
 - Display data not transferred on a external bus reducing overall load
 - Ready to go solutions from Third Party Vendors
- Key Features for Digital Audio Support
 - Digital Media interfaces: SDMC
 - Audio IO processing: Audio Libraries for Superscalar SH-2A with FPU, 64KByte buffers, SPIDF, I2S
- High Speed USB 2.0 Host for fast connectivity
- Low Total Cost Ownership (TCO) and Quick Time to Market (QTM)
 - Bootable SPI Flash + Embedded SRAM is more cost effective than SDRAM and NOR Flash options
 - Example application code Available

Superscalar RISC Core with FPU



2.0 DMIPs/MHz or
Up to 288 DMIPs Performance

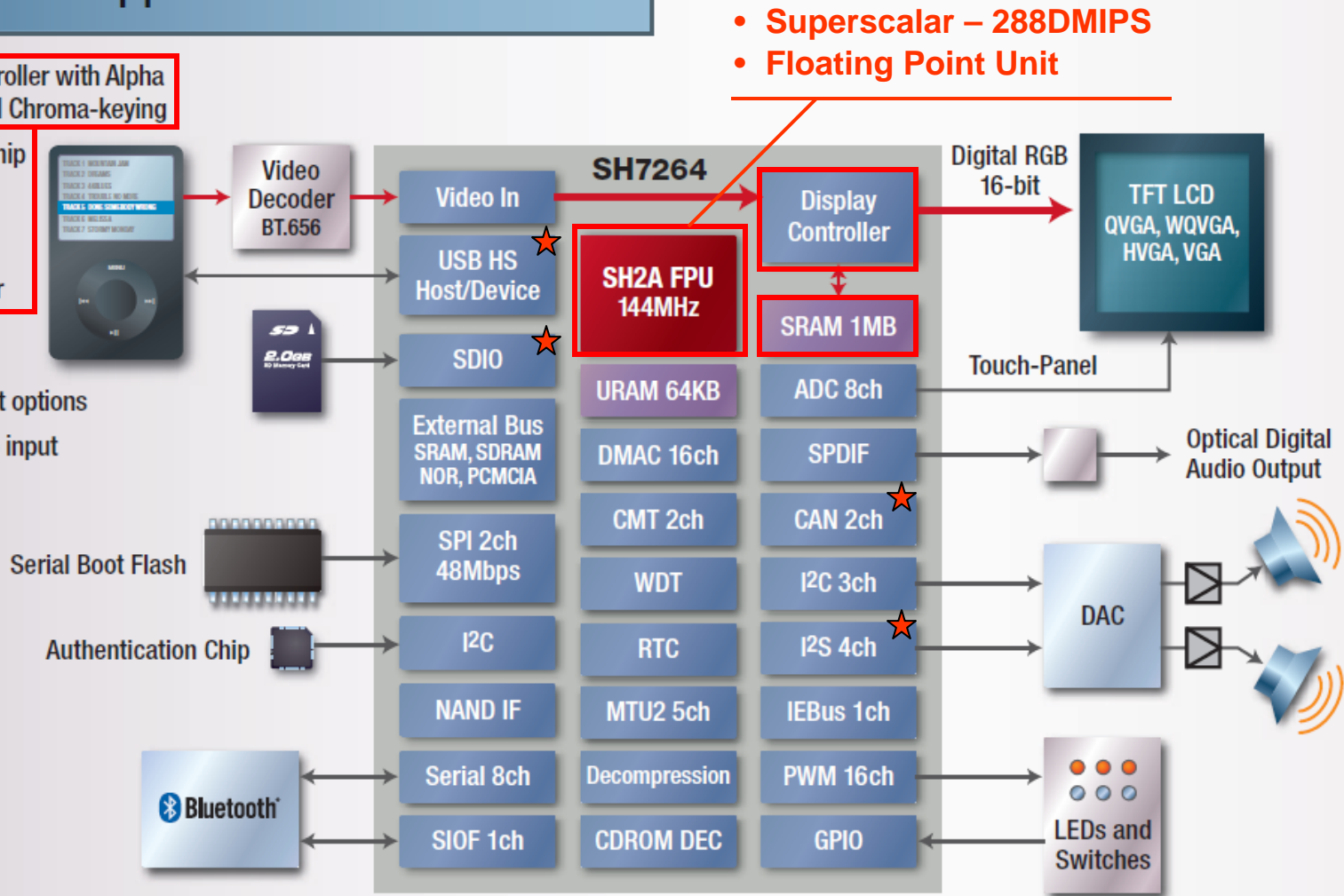
SH7260 VDC3: Three buffer layer example



SH7260 Series Application Example

Audio/Video Application

- ▶ Display Controller with Alpha blending and Chroma-keying
- ▶ 1MB of on-chip SRAM for Program Space and Frame Buffer
- ▶ Serial and Parallel Memory boot options
- ▶ BT.656 Video input



- Superscalar – 288DMIPS
- Floating Point Unit

Target Applications

Factory Automation

Precision Motion Control
Industrial Connectivity
Fast I/O Control



Operator Panels



Scientific & Medical

Signal Analysis
Quiet Motor Control
Connectivity



Operator Panels



Consumer Media Players User Interfaces



Office Automation Image Processing Precise Stepper Control Connectivity Operator Panels



White Goods Energy Efficient Motor Control



Information Displays



Building Automation High-end Security Systems Image Processing Speech, Connectivity Thermostat, Control Panel



Control Panels



Development Tools

Development Environments



FREE

C/C++ Compilers



KPIT GNU Tools

MULTI®

FREE

Evaluation Systems



Emulators



E10A-USB



E200F



GDB

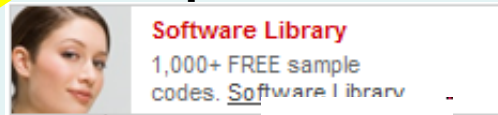
FREE

RTOS & Middleware



FREE

Sample Code & Libraries from Renesas



CAN



Free SW from Renesas



CAN



- Sample code for major peripherals
- Vector Control Motor Algorithms
- CAN API – compatible with R8C & R32C API
- USB Device – CDC, MSC, HID
- Fixed Point Math & DSP Libraries for SH-2A FPU

Available on am.renesas.com

Third Party Support by SW Components

Third Party	IDE	Compiler	Debug	RTOS	TCP/IP Stack	USB Device	USB Host	Graphics	File
CMX				✓	*	*	*		✓
Express Logic				✓	✓	✓	✓	✓	✓
Free RTOS				✓					
Green Hills	*	*	*						
IAR	✓	✓	✓						
KPIT GNU	✓	✓	✓						
Jungo						✓	✓		
Micrium				✓	*	*	*	✓	*
Micro Digital							*		
RoweBots				✓	*	*	*		✓
Segger				✓	*	✓	*	✓	✓

* Check Status

The roadmap of the SH7260 Series

Frequency of CPU

Large capacity on-chip
RAM products

SH7269
256pin LQFP
272pin BGA

SH7268
208pin LQFP

266MHz
OpenVG 2D
Graphics, USB,
VDC4, Video
Decoder, 2.5MB
RAM

SH7264
208pin LQFP

144MHz
USB, VDC3
640kB/1MB
RAM

SH7267
176pin LQFP

144MHz
USB, VDC3
1.5MB RAM

SH7266
144pin LQFP

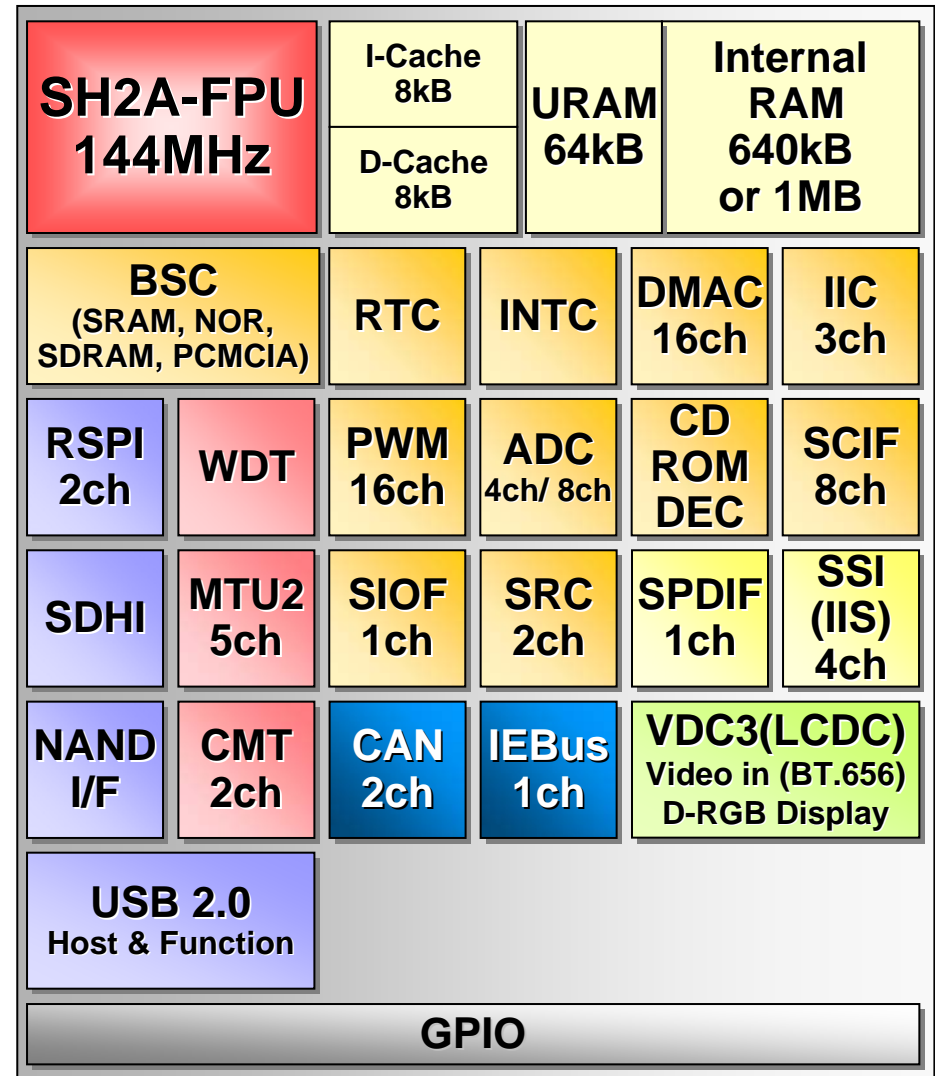
Mass Production

Under Development

SH7262/64

- CPU: SH2A-FPU(SuperH RISC engine)
- Frequency: CPU 144MHz/Bus 72MHz(max.)
- Power internal 1.2V/external 3.3V
- Internal Memory
 - URAM: 64KB
 - SRAM: 1MB (include 32KB stand-by RAM)
640KB (include 320KB stand-by RAM)
 - Cache: I=8KB, D=8KB
- External Memory Interface
 - SRAM, NOR Flash, SDRAM, PCMCIA
 - Bus width: 8bit or 16bit, Maximum area: 64MB
- Peripherals
 - DMAC: 16ch
 - USB Host/Function (Hi-Speed of Full Speed) : 1ch
 - Multi Function Timer(MTU2): 5ch
 - 16bit Timer (CMT): 2ch
 - 10bit PWM timer: 16ch
 - Watch Dog Timer (WDT): 1ch
 - Real Time Clock (RTC): 1ch
 - I²C bus I/F: 3ch
 - Serial Communication I/F with FIFO (SCIF): 8ch
 - Renesas Serial Peripheral Interface (RSPI): 2ch
 - Clocked Serial I/F with FIFO (SIOF): 1ch
 - RCAN: 2ch(Optional)
 - Video Display Controller (VDC3): D-RGB (up to WQVGA)
: Video input (BT.656)
 - NAND Flash Memory Controller
 - Serial Sound Interface (SSI or I²S): 4ch
 - Renesas SPDIF Interface (SPDIF): 1ch
 - Sampling Rate Convertor (SRC): 2ch
 - CD-ROM Decoder
 - 10bit A/D converter: 4ch / 8ch
 - SD Host Interface (SDHI) 1ch
 - IE Bus 1ch(Optional)

- Package
 - 176pin QFP(SH7262) 24mm sq or 208pin QFP(SH7264)
28mm sq

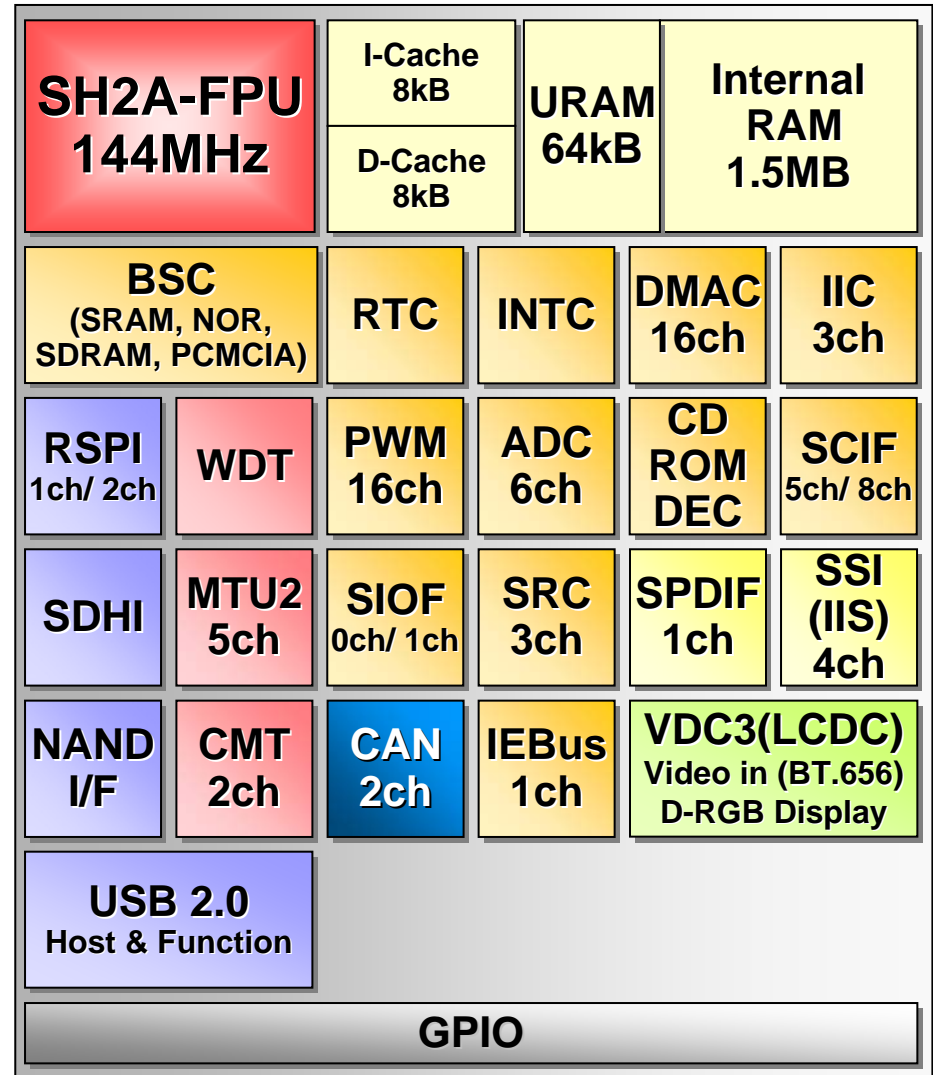


 option

SH7266/67

- CPU: SH2A-FPU(SuperH RISC engine)
- Frequency: CPU 144MHz/Bus 72MHz(max.)
- Power internal 1.15 – 1.35V/external 3.3V
- Internal Memory
 - URAM: 64KB
 - SRAM: 1.5MB (include 128KB stand-by RAM)
 - Cache: I=8KB, D=8KB
- External Memory Interface
 - SRAM, NOR Flash, SDRAM, PCMCIA
 - Bus width: 8bit or 16bit, Maximum area: 64MB
- Peripherals
 - DMAC: 16ch
 - USB Host/Function (Hi-Speed of Full Speed) : 1ch
 - Multi Function Timer(MTU2): 5ch
 - 16bit Timer (CMT): 2ch
 - 10bit PWM timer: 16ch
 - Watch Dog Timer (WDT): 1ch
 - Real Time Clock (RTC): 1ch
 - I²C bus I/F: 3ch
 - Serial Communication I/F with FIFO (SCIF): 5ch / 8ch
 - Renesas Serial Peripheral Interface (RSPI): 1ch / 2ch
 - Clocked Serial I/F with FIFO (SIOF): 0ch / 1ch
 - RCAN: 2ch(Option)
 - Video Display Controller (VDC3): D-RGB (up to WQVGA) : Video input (BT.656)
 - NAND Flash Memory Controller
 - Serial Sound Interface (SSI or I²S): 4ch
 - Renesas SPDIF Interface (SPDIF): 1ch
 - Sampling Rate Convector (SRC): 2ch
 - CD-ROM Decoder
 - 10bit A/D converter: 6ch
 - SD Host Interface (SDHI) 1ch
 - IEBus 1ch

- Package
 - 144pin QFP(SH7266) 20mm sq or 176pin QFP(SH7267) 24mm sq



 option

SH7262 Part Numbers

On-chip RAM	part number	Max freq.	PKG	Temp	note
1MB	R5S72620P144FPU	144MHz	QFP	-40 to +85 C	for car accessory option:none
	R5S72621P144FPU	144MHz	QFP	-40 to +85 C	for car accessory option:CAN
	R5S72622P144FPU	144MHz	QFP	-40 to +85 C	for car accessory option:IE Bus
	R5S72623P144FPU	144MHz	QFP	-40 to +85 C	for car accessory option:CAN, IE Bus
	R5S72620W144FPU	144MHz	QFP	-20 to +85 C	for industrial option:none
	R5S72621W144FPU	144MHz	QFP	-20 to +85 C	for industrial option:CAN
	R5S72622W144FPU	144MHz	QFP	-20 to +85 C	for industrial option:IE Bus
	R5S72623W144FPU	144MHz	QFP	-20 to +85 C	for industrial option:CAN, IE Bus
640KB	R5S72624P144FPU	144MHz	QFP	-40 to +85C	for car accessory option:none
	R5S72625P144FPU	144MHz	QFP	-40 to +85C	for car accessory option:CAN
	R5S72626P144FPU	144MHz	QFP	-40 to +85C	for car accessory option:IE Bus
	R5S72627P144FPU	144MHz	QFP	-40 to +85C	for car accessory option:CAN, IE Bus
	R5S72624W144FPU	144MHz	QFP	-20 to +85C	for industrial option:none
	R5S72625W144FPU	144MHz	QFP	-20 to +85C	for industrial option:CAN
	R5S72626W144FPU	144MHz	QFP	-20 to +85C	for industrial option:IE Bus
	R5S72627W144FPU	144MHz	QFP	-20 to +85C	for industrial option:CAN, IE Bus

SH7264 Part Numbers

On-chip RAM	part number	Max freq.	PKG	Temp	Note
1MB	R5S72640P144FPU	144MHz	QFP	-40 to +85 C	for car accessory option:none
	R5S72641P144FPU	144MHz	QFP	-40 to +85 C	for car accessory option:CAN
	R5S72642P144FPU	144MHz	QFP	-40 to +85 C	for car accessory option:IE Bus
	R5S72643P144FPU	144MHz	QFP	-40 to +85 C	for car accessory option:CAN, IE Bus
	R5S72640W144FPU	144MHz	QFP	-40 to +85 C	for industrial option:none
	R5S72641W144FPU	144MHz	QFP	-40 to +85 C	for industrial option:CAN
	R5S72642W144FPU	144MHz	QFP	-40 to +85 C	for industrial option:IE Bus
	R5S72643W144FPU	144MHz	QFP	-40 to +85 C	for industrial option:CAN, IE Bus
640KB	R5S72644P144FPU	144MHz	QFP	-40 to +85 C	for car accessory option:none
	R5S72645P144FPU	144MHz	QFP	-40 to +85 C	for car accessory option:CAN
	R5S72646P144FPU	144MHz	QFP	-40 to +85 C	for car accessory option:IE Bus
	R5S72647P144FPU	144MHz	QFP	-40 to +85 C	for car accessory option:CAN, IE Bus
	R5S72644W144FPU	144MHz	QFP	-40 to +85 C	for industrial option:none
	R5S72645W144FPU	144MHz	QFP	-40 to +85 C	for industrial option:CAN
	R5S72646W144FPU	144MHz	QFP	-40 to +85 C	for industrial option:IE Bus
	R5S72647W144FPU	144MHz	QFP	-40 to +85 C	for industrial option:CAN, IE Bus

SH7266/SH7267 Part Numbers

on-chip RAM	part number	Max freq.	PKG	temparature	note
1.5MB	R5S72660P144FP	144MHz	QFP	-40 to +85 C	for car accessory option:none
	R5S72661P144FP	144MHz	QFP	-40 to +85 C	for car accessory option:CAN
	R5S72660W144FP	144MHz	QFP	-20 to +85 C	for industrial option:none
	R5S72661W144FP	144MHz	QFP	-20 to +85 C	for industrial option:CAN
	R5S72670P144FP	144MHz	QFP	-40 to +85 C	for car accessory option:none
	R5S72671P144FP	144MHz	QFP	-40 to +85 C	for car accessory option:CAN
	R5S72670W144FP	144MHz	QFP	-20 to +85 C	for industrial option:none
	R5S72671W144FP	144MHz	QFP	-20 to +85 C	for industrial option:CAN



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