

Digital Audio/Video Decoders

for Home Entertainment applications

				Recommended for New Designs		
DEVICE	SAA7173	SAA7174A	SAA7171	SAA7136E SAA7136AE SAA7136BE SAA7136CE SAA7136DE	SAA7137HS SAA7137BHS SAA7137CHS SAA7137DHS	SAA7138HL SAA7138AHL SAA7138BHL SAA7138CHL SAA7138DHL SAA7138EHL SAA7138FHL SAA7138GHL
Clock:						
Sample Rate	2× ITU-601	2× ITU-601	2× ITU-601	4× ITU-601	4× ITU-601	4× ITU-601
Real-Time Control (RTC)	•	•	•	•	•	•
Audio Clock	Frame- or Field Locked	Frame- or Field Locked	Frame- or Field Locked	Frame- or Field Locked	Frame- or Field Locked	Frame- or Field Locked
Video Input:						
Analog Inputs	5 plus SSIF	5 plus SSIF	5 plus SSIF & Low-IF	12 plus SSIF & Low-IF	11 plus SSIF & Low-IF	12 plus SSIF
Analog-to-Digital Converters (ADCs)	2 Low Noise	2 Low Noise	2 Low Noise	4 Studio Quality	4 Studio Quality	4 Studio Quality
ADC Resolution	9-bit, 2×- Over-Sampled	9-bit, 2×- Over-Sampled	9-bit, 2×- Over-Sampled	10-bit, 4×- Over-Sampled	10-bit, 4×- Over-Sampled	10-bit, 4×- Over-Sampled
Analog RGB/YPbPr Component Video Input				Including 480p/576p/ 720p/1080i	Including 480p/576p/ 720p/1080i	Including 480p/576p/
SCART Support				SAA7136E/AE/DE	SAA7137HS/DHS	SAA7138HL/AHL/ DHL/GHL
D-Connector Support				•	•	
Digital YC _B C _R Input(s)				2 × 8/10 bit or 16/20 bit	8/10 bit	
HD Digital YC _B C _R Input				•	•	
Audio Input:						
Analog Stereo Inputs	2	2	2	3	3	4
ADC Resolution	2× 16 bit, stereo	2× 16 bit, stereo	2× 16 bit, stereo	2× 16 bit, stereo	2× 16 bit, stereo	2× 16 bit, stereo
Max. ADC sampling frequency	48 kHz	48 kHz	48 kHz	48 kHz	48 kHz	48 kHz
Digital Stereo Inputs				2× I²S, SPDIF	1× I²S, SPDIF	1× I²S, SPDIF
Max. data rate for digital audio-in				96 kHz	96 kHz	192 kHz
IF Processing:						
Multi-standard IF-Demodulator			•	SAA7136E	SAA7137HS	
Standards:						
Video: NTSC/PAL/SECAM	•	•	•	•	•	•
Audio: NICAM, A2, FM-radio		•	•	SAA7136E/AE/DE	SAA7137HS/DHS	SAA7138HL/AHL/ DHL/GHL
Audio: BTSC, EIAJ, A2, FM-radio	Except A2		•	SAA7136E/AE/ BE/CE	SAA7137HS/ BHS/CHS	SAA7138HL/AHL/ BHL/CHL/ EHL/FHL
dbx® de-companding	•		•	SAA7136E/AE/BE	SAA7137HS/BHS	SAA7138HL/AHL/ BHL/EHL
NXP Noise Reduction (ENR) for BTSC				SAA7136CE	SAA7137CHS	SAA7138HL/AHL/ BHL/CHL/ EHL/FHL
Standard Detection	Fully Automatic	Fully Automatic	Fully Automatic	Enhanced Fully Automatic Including HD	Enhanced Fully Automatic Including HD	Enhanced Fully Automatic Including HD

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Feature Processing:						
Adaptive 2/4-Line NTSC/PAL Comb Filter	•	•	•	Enhanced+ Super-Adaptive	Enhanced+ Super-Adaptive	Enhanced+ Super-Adaptive
2D Noise Reduction (on chip)						SAA7138HL/EHL/FHL/GHL
Universal VBI Data Slicer				Including CGMS, Gemstar (Progressive)	Including CGMS, Gemstar (Progressive)	Including CGMS, Gemstar (Progressive)
I ₂ C VBI Read Back				Including VPS&PDC	Including VPS&PDC	Including VPS& Extended PDC
Square Pixel Output Rate				•	•	•
AGC Read Back				•	•	•
Automatic VCR Detection and SuperSynch				Enhanced	Enhanced	Enhanced
High End Picture Improvement Techniques				Sharpness CTI Color stretch	Sharpness CTI Color stretch	Sharpness CTI
Edge Depending De-Interlacing (EDDI)				•	•	
Scaler:						
Pixel Accurate H/V Scaler	•	•	•	•	•	
Non-linear scaling "Panorama"				•	•	
Video Output:						
Number of Digital Ports	2	2	2	2	2	1
Color Format	Y _C B _C R	Y _C B _C R	Y _C B _C R	Y _C B _C R RGB	Y _C B _C R RGB	Y _C B _C R
Possible Port Configurations	8-bit or 16-bit	8-bit or 16-bit	8-bit or 16-bit	8/10-bit or 16/20-bit or 24-bit	8/10-bit or 16/20-bit or 24-bit	8/10-bit or 16/20-bit
HD Digital Output				•	•	•
Audio Output:						
Analog Stereo Outputs	2	2	2	2	2	2
DAC resolution (pairs)	1 × 16 bit, stereo	1 × 16 bit, stereo	1 × 16 bit, stereo	2 × 16 bit, stereo	2 × 16 bit, stereo	2 × 16 bit, stereo
Max. DAC frequency	48 kHz	48 kHz	48 kHz	48 kHz	48 kHz	48 kHz
Digital Stereo Outputs	2 × I ² S	2 × I ² S	2 × I ² S	2 × I ² S or I ² S & SPDIF	2 × I ² S or I ² S & SPDIF	I ² S & SPDIF
Max data rate on digital outputs	48 kHz	48 kHz	48 kHz	48 kHz	48 kHz	48 kHz
Sample Rate Conversion				•	•	•
General:						
Supply Voltage	3.3V	3.3V	3.3V	1.8V/3.3V	1.8V/3.3V	1.8V/3.3V
I ² C Status Interrupt Pin	•	•	•	Enhanced	Enhanced	Enhanced
Macrovision Detection	Enhanced 3-Level	Enhanced 3-Level	Enhanced 3-Level	Enhanced 3-Level Incl. Progressive	Enhanced 3-Level Incl. Progressive	Enhanced 3-Level Incl. Progressive Rights States
Package	LQFP128	LQFP128	BGA256	BGA256	SQFP208	LQFP128
Pin-to-Pin Compatible	SAA7174A	SAA7173		all SAA7136xE	all SAA7137xHS	all SAA7138xHL
Availability:						
Status	Production	Production	Production	Production	Production	Sampling