

IP Catalog

MP3 Decoder on ARM-9E

Product Summary:

Company Info	Network Systems & Technologies (NeST)
Product Type	Application Software
Component	Audio codec
Application(s)	Multimedia
Market	Consumer Electronics
DSP Generation	ARMv5TE
DSP device	ARM926EJ-S
Product Info	MP3 decoder on ARM-9E

Description:

MPEG-1/2 audio layer-3 (MP3) is the most popular format for playback of high quality compressed audio for portable devices such as audio players and mobile phones. The MPEG1 audio standard (ISO/IEC 11172-3) provides the syntax and decoding process for compressed audio bit-streams. MPEG1 Layer 3 encoded audio streams are called .mp3 files, which is one of the most popular audio formats for Internet audio applications. MPEG1 audio works for both mono and stereo signals.

Features:

- Standard - ISO/IEC 11172-3 and 13818-3 Layer 3
- Sampling frequencies – 8 to 48 kHz
- Bit-rates from 8 kbps to 320 kbps
- Upto two channels
- Supported modes
 - Mono, stereo, dual channel
 - Joint stereo (intensity stereo and MS stereo)
- Output : 16 bit LPCM
- Constant and Variable Bit-rates
- Supports CRC protection checking
- Support free format streams
- Simple and C callable API set
- Optimized implementation

CPU Usage:

Stream	Peak MCPS*	Average MCPS
48 kHz 320 kbps	15.52	14.27
44 kHz 128 kbps	13.16	12.19

* Please see the below notes

Memory Usage (in kB):

Program memory	Constant tables (ROM)	Heap (RAM)	Stack
28	13	23	25

Notes:

- Performance on Code composer Studio v3.3 ARM926EJ-S cycle accurate simulator with 0 wait state memory access.
- Peak MCPS specified is peak per second for 48 kHz 320 kbps (*test_48_320_2.mp3*) and 44 kHz 128 kbps (*mix1_44_128.mp3*) worst case stream.
- MCPS figure indicates CPU usage for stereo streams
- MCPS figures on hardware will vary with the I-Cache and D-Cache size and with the memory configuration/placement and data alignment.
- Program memory does not include the test application and standard library functions.