



- **Compliant with the eXpressDSP Digital Media (XDM) interface**
- **Bit-exact with ITU-T G.722.2 Reference C code on all test sequences**
- **Optimized for TI C55x DSP**
- **C-callable interface for Encoder and Decoder**
- **Re-entrant multi channel implementation**
- **Fully interruptible code**
- **Relocatable tables**
- **Efficient scratch memory management with reduced stack requirements**
- **The implementation support run-time data buffers relocation and table relocation**
- **Large and small memory models are supported as compile time options**
- **Validated on C5515 EVM with the 16-bit dual fast ret stack mode, using Code Composer Studio version 5.2.1.00018 and code generation tools version 4.4.0**
- **This codec can be used on other C55x platforms like C5510, C5505, C5515**

description

The ITU G.722.2, which is also known as WB-AMR is a wideband coder. It encodes frames of 20ms (samples) into 477/461/397/365/317/285/253/177/132 bits.

- Encoder takes 20ms speech samples and gives 9 different bit-rates corresponds to 9 modes of operation.
- Supports the bitrates 6.60, 8.85, 12.65, 14.25, 15.85, 18.25, 19.85, 23.05 and 23.85 kbps, which can be changed on the fly
- Supports IF1 frame format with CRC
- It supports the features like VAD & CNG



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summary of performance

Table 1. Configuration Table

CONFIGURATION	ID
Encoder	G722_2_001
Decoder	G722_2_002
Full Duplex	G722_2_003

Table 2. Cycles Information – TMS320C5515 EVM

CONFIGURATION ID	PERFORMANCE STATISTICS (IN MEGACYCLES/SEC) ¹	
	AVERAGE	PEAK
G722_2_001	21.782	22.482
G722_2_002	3.944	4.049
G722_2_003	25.726	26.531

¹ Measured with frame size= 80 samples (10ms)

Table 3. Memory Statistics - Generated with Code Generation Tools Version 4.4.0

CONFIGURATION	MEMORY STATISTICS ³				
	PROGRAM MEMORY	DATA MEMORY			TOTAL
		INTERNAL	EXTERNAL	STACK	
G722_2_001	40.132	32.520	0	0.121	72.773
G722_2_002	23.744	24.173	0	0.229	48.146
G722_2_003	50.212	35.246	0	0.350	85.808

³ All memory requirements are expressed in kilobytes (1 kilobyte = 1024 bytes)

Table 4. Internal Data Memory Split-up

CONFIGURATION	DATA MEMORY – INTERNAL ⁴		
	SHARED		INSTANCE ⁵
	CONSTANTS	SCRATCH	
G722_2_001	19.938	9.287	3.295
G722_2_002	19.074	3.439	1.660
G722_2_003	21.004	9.287	4.955

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⁴ All memory requirements are expressed in kilobytes (1 kilobyte = 1024 bytes)

⁵ Does not include I/O buffers

notes

- Total Data Memory for N *Non-Pre-Emptive* Instances =
Constants + Runtime Tables + Scratch + N*(Instance + I/O buffers + Stack)
- Total Data Memory for N *Pre-Emptive* Instances =
Constants + Runtime Tables + N*(Instance + I/O buffers + Stack + Scratch)

references

ITU-T Recommendation G.722.2

glossary

Constants	Constant tables used
Scratch	Memory space that can be reused across different instances of the algorithm
Shared	Sum of Constants and Scratch
Instance	Persistent-Memory that contains persistent information – allocated for each instance of the algorithm

acronyms

ITU	International Telecommunication Union
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