TMS320C54CST
CALLER ID I & II ALGORITHM

SPRS184A – OCTOBER 2001 – REVISED MARCH 2003

- **Supported Standards:**
  - **Bellcore (GR–30–CORE and SR–TSV–002476)**
  - **British Telecom (SIN227 and SIN242)**
  - **CCA TW/P&E/312**
  - **ETSI (ETS 300 659, ETS 300 778)**
  - **Mercury Communications (MNR19)**
  - **Dutch Telecom (DTMF-Based)**
  - **China and Australia Standards**
- **Caller ID is Implemented Both for Local Exchange and for CPE (Customer Premises Equipment) Sides**
- **Can be Switched to DT–AS (CAS) Signal Detector, FSK Carrier Detector, FSK Message Detector, TE-ACK Signal Generator, DT-AS Signal Generator, TE-ACK Detector, SAS Signal Generator, FSK Message Generator, Based Message Decoder, DTMF-Based Message Generator**
- **Direct Interface With PCM 8-kHz Sampled Data. Both Sample-By-Sample and Block-Based Processing Supported**
- **Supports Caller ID on Call Waiting Operation and DTMF-Based Subscription Protocol**
- **Supports Single and Multiple Data Message Formats and VMWI**
- **Allows for Adjusting Carrier Thresholds, Signal Levels, Etc.**
- **Delivers Completely Decoded Caller ID Messages at a Presentation Layer, Including Forwarding Call Information, Network Operator Messages, Etc.**
- **Supplied With a Simple Wrapper Class to Make Integration Easier and Much More Feasible**
- **Allows the User to Disable Certain Features at Link Time, Thus Reducing the Code Size**
- **eXpressDSP-Compliant Algorithm. Code is Reentrant, Supports Mulithreading and Dynamic Memory Allocation. At the Same Time Allows DIrect (Non-eXpressDSP) Interface to Enable Static Memory Allocation**
- **Can be Easily Ported to any Platform**

description

The SPIRIT Caller ID type I and II algorithm supports a wide range of standards and can be used in all applications where it is necessary to transmit the number of the caller to the subscriber.

resource requirements

ALGORITHM	PEAK MIPS	PROGRAM MEMORY (KWORDS)	CONSTANT MEMORY (KWORDS)	DYNAMIC MEMORY (KWORDS)
CID Object	1.4	2.661	0.25	0.044
CID Message Parser	–	0.74	0.6	0.26

NOTE: CID Message Parser is optional, needed only for text parsing of received message. Dynamic memory of CID Parser includes message buffers. Program memory can significantly vary depending on the options used. The requirements are for standalone variants of this object. In actual systems it is possible to reduce memory requirements by sharing common resources with other algorithms provided by SPIRIT.

availability

The SPIRIT Caller ID I & II is available in four forms:

- eXpressDSP-compliant object code for TMS320C54x
- Fully functional eXpressDSP evaluation object at extremely low price
- Portable C code
- Assembly code

availability (continued)

The algorithm is supplied with test environment and integration example code.

Detailed product annotation and user guide documents describing testing procedures, interface and integration of this product, as well as PC-based and DSP-based (TI TMS320VC5406 EVM and TMS320VC5402 DSK) demos are available for evaluation upon request. To get additional information on CST software, go to www.spiritdsp.com/CST.

performance

SPECIFICATION	VALUE
Supported standards	Bellcore (GR–30–CORE and SR–TSV–002476) British Telecom (SIN227 and SIN242) CCA TW/P&E/312 ETSI (ETS 300 659, ETS 300 778) Mercury Communications (MNR19) Dutch Telecom (DTMF-Based) China and Australia Standards
DUAL TONE SIGNAL (DT-AS) DETECTOR	
‘Low’ tone nominal frequency	2130 ± 30 hz
‘High’ tone nominal frequency	2750 ± 30 hz
Acceptable twist	–6...+6 dBc (can be configured)
Acceptable levels	–2...–35 dBF (can be configured)
Minimum burst duration	45 msec
Maximum response time	20 msec
FSK RECEIVER	
Transmission rate	1200 ± 10% baud
Mark (logical 1) frequency	1188...1320 Hz
Space (logical 0) frequency	2068...2222 Hz
Acceptable SNR	10 dB
Acceptable levels	0...–45 dB (can be configured)
SUBSCRIBER ALERT SIGNAL (SAS) GENERATOR	
Output level	0...–30 dB (can be configured)
Frequency tolerance	better than 1 Hz
Spurious level	<–60 dBc
TE ACKNOWLEDGMENT (T-ACK) GENERATOR	
Output level	0...–30 dB (can be configured)
Frequency tolerance	better than 1 Hz
Spurious level	<–60 dBc
DTMF message	DTMF symbols ‘A’, ‘B’, ‘C’, or ‘D’
Row/Column tones ration	2 ± 0.5 dB
Tone time	60 msec
Pause time	40 msec

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