



Surf DSP Family

Complete DSP Chip-Level Solution for Multimedia Telecom Infrastructure Applications

Main Features

- » SurfWare-Media™ comprehensive media processing package for audio/voice, video, modem and fax, including complete codec set
- » APIs for quick integration and reduced time-to-market
- » Provided on TI's TMS320C64x™ and TMS320C64x+ DSP generation
- » Full documentation set and sample applications for fast and easy development
- » Dedicated customer service, including training, for smooth integration
- » Built-in real-time remote diagnostics capabilities for easy field deployment and support

Target Applications

- » 3G-324M Video Servers
- » MMSC Content Adaptation Engines
- » Audio and Video Gateways
- » VoIP Media Servers
- » iPBX (IP PBX)
- » CTI Applications
- » Packet-to-Packet Applications
- » Session Border Controllers



Overview

Surf offers a variety of DSP-level solutions for the development of telecom infrastructure applications, each of which comprises a complete media processing solution offering simultaneous support for multimedia convergence—audio/voice, video, fax and/or modem—all running on a single DSP. Equipment manufacturers who develop Media Gateways, Media Servers, CTI products, and other applications that require media processing find this solution ideal and optimized for their requirements, as well as quick and easy to integrate into their hardware designs.

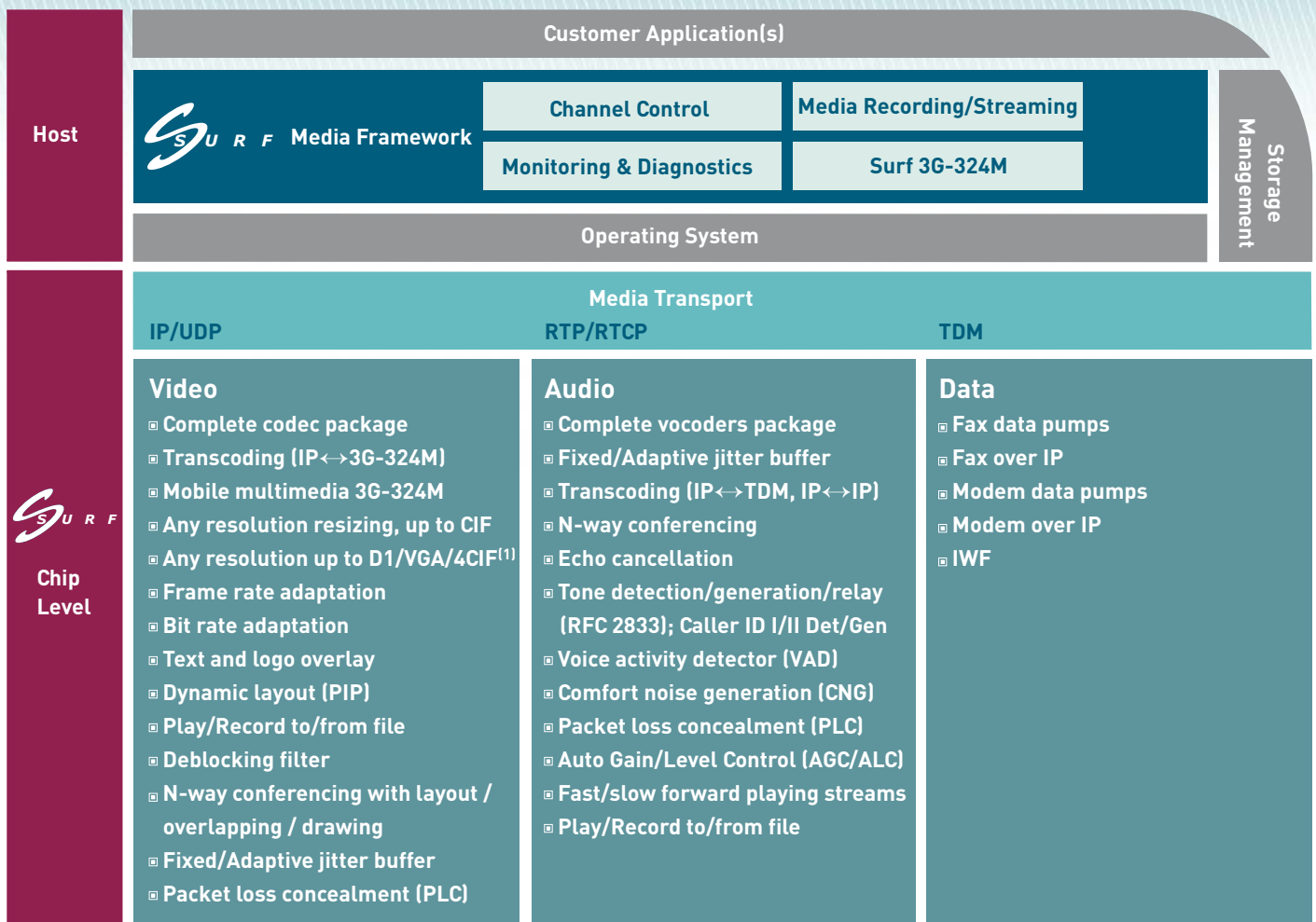
Fast and Easy Development and Integration

Featuring cost-effective unmatched processing power of varying densities (depending on the DSP model), each member of Surf's DSP family comes with SurfWare-Media, a complete software, sample applications and documentation set. The software relates to both DSP and Host levels, enabling easy and comprehensive DSP control, monitoring, diagnostics, and streaming/recording functions.

High Performance with TI's C64x DSP Generation

Texas Instruments' C64x series of DSP devices is specifically designed to handle converged applications that require a high-performance fixed-point processing architecture with significant memory and multiple high-speed I/O paths, such as audio, voice, video, and wireless applications. The combination of TI's high-performance silicon with Surf's field-proven multimedia processing software results in a powerful yet flexible solution that helps keep development costs down while accelerating time-to-market.

System and Chip Architecture



System Highlights

- » Simple, high-level API provides access and control over DSP interfaces
- » Audio and Video Streaming
 - ▣ Play/record of audio and video streams from Host file system to IP, TDM, or 3G networks
 - ▣ Content adaptation; real-time audio-video transcoding
- » Voice and Video Conferencing
 - ▣ N-Way conferencing on a single DSP
 - ▣ Up to 96 participants when using inter DSP communication
 - ▣ Dynamic dominant speaker recognition
 - ▣ Addition/removal of participants during conference
 - ▣ Distributed solution
- » Video Display Capabilities
 - ▣ User-defined/pre-defined screen layout defining size and location for each picture component
 - ▣ Background and foreground setting in run-time
- ▣ Picture overlap support (picture-in-picture)
- ▣ Dynamic text overlay (Unicode)
- » Advanced Video Toolbox
 - ▣ Configurable frame rate
 - ▣ Bit rate change
 - ▣ Resize to any resolution
 - ▣ Video codec change
 - ▣ Logo insertion
 - ▣ Text overlay
- » Supports Linux and Windows Host OS
- » Reliable Host-DSP communication over UDP

⁽¹⁾ Roadmap

SurfWare-Media Components

Voice Capabilities

Wireline & Wireless Speech Codecs	<ul style="list-style-type: none"> ▣ G.711 ▣ G.729AB ▣ G.722.2 (WB-AMR) ▣ G.726 ▣ iLBC ▣ GSM NB-AMR ▣ G.723.1A ▣ GSM FR ▣ QCELP^[2] ▣ GSM EFR ▣ EVRC
Audio Codecs	<ul style="list-style-type: none"> ▣ WMA9 (decode only) ▣ AAC^[2]
Conferencing	<ul style="list-style-type: none"> ▣ N-way: 165 ▣ 3-way: 90 bridges
Echo Cancellation	<ul style="list-style-type: none"> ▣ G.168 2002 echo tail up to 128ms
Quality	<ul style="list-style-type: none"> ▣ Voice Activity Detection ▣ Comfort Noise Generation ▣ Packet Loss Concealment ▣ Fixed/Adaptive Jitter Buffer up to 1000 ms ▣ Auto Gain / Level Control
Transport	<ul style="list-style-type: none"> ▣ RTP/RTCP: RFC 3550, 3551, 3389 ▣ Packet Size: 5-60ms (5ms resolution) ▣ Single or multiple frames per packet
Tone and Events	<ul style="list-style-type: none"> ▣ Monitoring ▣ Detection / Generation ▣ Relay (RFC 2833) ▣ User-defined tones ▣ Caller ID detection and generation

Modem over IP Capabilities

Data Pumps	<ul style="list-style-type: none"> ▣ Up to V.92, including V.42/V.42bis
MoIP	<ul style="list-style-type: none"> ▣ V.8 modem relay (V-MR) as ITU V.150.1 (contributed by Surf) ▣ Universal modem relay (U-MR)
Connection Scenarios	<ul style="list-style-type: none"> ▣ Voice Band Data ▣ MR1

Mobile Video Capabilities

3G-324M Support	<ul style="list-style-type: none"> ▣ H.324 Annex C ▣ H.223 Annex A & B ▣ High-level 3G-324M APIs
Protocols	<ul style="list-style-type: none"> ▣ H.223 running on the DSP for enhanced performance ▣ H.245 running on the host ▣ MONA (H.324 Annex K - fast connect)^[2]

Video Capabilities

Video Codecs	<ul style="list-style-type: none"> ▣ MPEG-4 ▣ WMV9 (decode only) ▣ H.263 ▣ MPEG2^[2] ▣ H.264
Resolution	<ul style="list-style-type: none"> ▣ Any up to CIF ▣ VGA/D1/4CIF^[2]
Frame Rate	<ul style="list-style-type: none"> ▣ 1-30FPS
Bit Rate	<ul style="list-style-type: none"> ▣ Constant and variable
Transport	<ul style="list-style-type: none"> ▣ RTP encapsulation ▣ MPEG-TS^[2]
Quality	<ul style="list-style-type: none"> ▣ Configurable deblocking levels ▣ Multiple destination support ▣ Packet Loss Concealment ▣ Fixed/Adaptive Jitter Buffer up to 1000 ms

Conferencing & Streaming Capabilities

Video Participants	<ul style="list-style-type: none"> ▣ Up to 100 active ▣ Up to 16 displayed
Supported File Formats	<ul style="list-style-type: none"> ▣ 3GP ▣ ASF (WMV9) ▣ MPEG-4 ▣ AVI^[2]

Fax Capabilities

Data Pumps	<ul style="list-style-type: none"> ▣ V.17, V.29, V.27ter, V.21
Fax over IP: T.38	<ul style="list-style-type: none"> ▣ FEC/Redundancy ▣ Max Jitter 1 sec ▣ Supported roundtrip delay up to 6 sec
T.32	
IP-Aware Fax	<ul style="list-style-type: none"> ▣ T.32 to T.38

Surf DSP Family Members

TI DSP	Software	Surf Product
TMS320C6412	SurfWare-Media	Surf DSP-12
TMS320C6421		Surf DSP-21
TMS320C6424		Surf DSP-24
TMS320TCI6482		Surf DSP-82
TMS320C6486		Surf DSP-86 ^[2]

^[2] Roadmap

International Headquarters

Surf Communication Solutions, Ltd.
Tavor Building, P.O. Box 343
Yokne'am 20692 Israel
Tel: +972 (0) 73 714 0700
Fax: +972 (0) 4 959 4055
e-Mail: surf@surf-com.com

US Toll-Free Tel:

(866) 644-3379

About Surf Communication Solutions®

SURF Communication Solutions develops a suite of hardware and software products that drives a wide variety of applications whose common goal is high-capacity distribution of voice and video. These applications are predominantly developed by media gateway, media server and IMS equipment manufacturers in the telecommunication infrastructure field.

The Surf media processing engine is available in a variety of integration levels, such as AMC, PTMC and PCI form factor resource boards or DSP chips, which are pre-integrated with leading ATCA, MicroTCA and cPCI carrier boards and blades.

By utilizing the capabilities and flexibility of Surf's media processing engine, customers can significantly reduce time-to-market while supporting market demands for true convergence of all media types: audio/voice, video, and data (fax/modem), over all networks: IP, mobile, wireline, and wireless – all on a single DSP.



www.surf-com.com

© 2007 Surf Communication Solutions, Ltd. All rights reserved. Specifications are subject to change without prior notice. The content of this document shall not, in any way, bind Surf Communication Solutions Ltd. or any party acting on Surf's behalf. Surf DSP, Open Framework, SurfWare-Media, and SurfDock are trademarks of Surf Communication Solutions. Other company or product names are the trademarks or registered trademarks of their respective holders.

BR.SD.200711