Welcome to Sega Developer News

The DTS Developer News is the Technical Support Newsletter from Sega of America Product Development which will be published on a quarterly basis. In this issue, you will find an updated tools list, DTS Software Exchange information, "Sound" Q&A, documentation updates, and more. We appreciate the feedback you have given us not only regarding the last newsletter but also on how we can better support your development efforts. I encourage you to keep the lines of communication open. We hope that this and future issues will continue to address the comments and questions raised.

I would also like to take this opportunity to remind you to make your arrangements for SEGA DevCon '95. In this first annual developers conference, we will have multi-track seminars on Saturn, 32x, Genesis, and others for both novice and advanced audiences. Moreover, in response to numerous requests, sessions on art and sound will be featured. So, to all the programmers, art and sound specialists, mark your calendar for March 14-17 at the Santa Clara Marriot Hotel in Santa Clara, California for Sega DevCon'95...the first of it's kind.

Once again, thank you for your contributions to SEGA. We hope to continue to enhance our partnership by providing you with the tools, documentation, and technical support for all your game development efforts.

Mike Larkin

Mike Larkin,
Manager, Developer Technical Support

DTS Software Exchange

The purpose of the DTS Software Exchange is to provide you with an opportunity to share software and information. This information are the issues that help not only the individual developer, but other developers as well. At Sega, we intend tool exchange to be a flexible and useful resource. The categories are as follows:

ShareWare:
- Software, you, as a developer, may want to share with SEGA or others.
- "Clearing House" for Utility/Tool/Application/ Techniques.
- If a developer has a tool they would like to share, they can provide DTS with a 'readme' file and information on how to contact them.
- We will provide a "software" wanted forum.

SellToSega:
- You may want to sell your tool to SEGA or license to other developers.
- If you have a tool/utility you would like to sell, please provide DTS with a 'readme" file and information so you may be contacted directly.

For more information on viewing a particular software through a forum or electronically, please contact DTS.

E-Mail: dts@segaoa.com
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Profile
Wiley Evans

Sound Support Engineer

Wiley Evans has been with SEGA for .5028 years (Calculate that!). His current job focus is to upgrade Audio Tools for the 32x and Genesis platforms. He is also preparing for SEGA DevCon '95. He will coordinate the seminars on the audio/sound aspects of game development for this upcoming multi-platform conference.

Prior to joining SEGA, he has held various positions with other companies. Among them are Audio Engineer for Atari; Free-lance Game Composer for ACME Music Productions; Telemarketer for the San Francisco Symphony; Recording Engineer for Cal Arts; Tuba player for Berkley Opera Company. He also has experience in meat-cutting and burger flipping...quite a range of talent!

Wiley obtained a Master of Fine Arts degree with emphasis in Music Performance and Composition from the California Institute of Arts, 1992, and a Bachelor of Music degree with emphasis in Performance from San Francisco State University, 1988.

Shown with Wiley is Claire from SEGA of Europe.

Q&A

Q When using SndSim 1.11 (from the DTS CD), I get the following error messages when loading the file NewMap.
Area 1 - crct
An error occurred during loading data

Area 1 - tone.bin
An error occurred during loading data

DSP-Check.EXB
An error occurred during loading data.

A This is to be expected when you open the "NewMap" for the first time. The files that are supposed to be included with the map can not be found even if these are in the same folder as "SndSim 1.11". This also happens if you move a file that is included in a map to another folder.

Here's what you can do. After getting through all of the errors, just double-click each line, except the DSP WORKRAM0, and reload the files. Then, resave the "NewMap" to avoid any error messages the next time you open the Map.

Q Is it possible to DMA to and from the cache on the SH2 chip?

A It's not possible to DMA within SH2. It is one of the restrictions of the SH2 specification.

Q I have written some 32X application code for target box version 1.0 and the code doesn't run on target box version 2.0.?

A Please replace the ICD_MARS.PRG in your code with the latest version and it should work with target box 2.0.

Q How is it possible to set up GNU to allow using "//" for comments.?

A In the LIB directory of GNU, you need to edit the SPECS file. On the line following "*cpp:" you place this exactly (without the qoutes):
"-lang-c-c++-comments". This should work. However, "//" is normally what you use for commenting in C++. You cannot use "//" with GNU C++, but you can use "//" with plain C.

Q Can I save SH2 code off the CartDev as a binary file?

A Yes, there is an option in the Snbug 32X Debugger that allows binary file saving.

Q I am working in GEMS on a PAL system but everything is really slow. Why is that and how do I fix that?

A When making sound for a PAL system all of the tempos need to be increased by 20%. But if the tempo is increased over 150 bpm then things start to break up so the original MIDI file has to be time scaled in half to accommodate the increase of tempo.

Q I got an error message "literal pool not flushed" when compiling with SNASM SH2 assembler.?

A You need to put command ".LITS" in the code where you want the literal table to be. Also you need to have "SNASMSH2.MAC" file in the directory where "SNASMSH2.EXE" resides.

Q I am using SNASM2 Assembler for 32X, Binary 16, P Switch. It is not banking correctly, so it's not aligned.

A Inserting ".align 4" command under groups and sections in the code should take care of the problem.

Q I cannot rebuild my demo correctly. The SRE file always comes out four to eight bytes different in size than the original SRE file that comes with the demo. Why?

A You may have an incorrect version of machine.h. Not all versions of GNU come with machine.h and some of these files that are out there are incorrect. Make sure that you have the correct version of this and all header files. The errors you receive may not even indicate that this is the problem. The latest version of machine.h is on the DTS BBS.

Q On a Genesis II with NTSC production 32X, both the Sega example program supplied with the 32X version 2 development systems and our own programs crash upon reset being pressed.

A The reset problem described above can be fixed by taking corrective measures. When 68K receives a reset, it waits for "M_OK" and "S_OK" from the two SH2 CPUs; but the SH2s have no knowledge of the reset and thus cause the crash. One way to fix this problem is to treat a reset (warm-start) like a cold-start. There is sample code dealing with the soft reset in demo program (32X_1012.ZIP) on the BBS. This demo program also has an Unified IRQ Handler routine and it should be used in 32X application code.

WAY-COOL

SEGA™

DevCon '95

Developers Conference

Dear DTS...

To our valued readers,
I appreciate the questions and feedback you have sent me concerning our last issue of the DTS Newsletter and the 32XPOSED conference we had in November. I am sharing some of these questions with the rest of the gang. Hope this helps many more... Keep those comments coming (use the "FAX Back" section on the last page of this newsletter).
DTS

Dear DTS:
What is available on developers BBS ?

On our BBS, we have conferences for all SEGA game platforms as well as art and sound tools. There are demos, sample code, utility programs and/or technical bulletins in these conferences. Access for each of these conferences is limited to the developers who have signed a non-disclosure agreement (NDA) for a particular platform, and who are actually developing a title for each platform.

Dear DTS:
Are there any forums on a network? and, what is the E-mail address for tech help?

DTS does not have a forum on any network. However, for general and product information, SEGA has a home page on the World Wide Web on the Internet. The address is: WWW.SEGAOA.COM . SEGA has a forum on the CompuServe network, as well. For tech help, the Internet E-mail address for SEGA Developer Technical Support is:

dts@segaoa.com

Dear DTS:
Does SNASM require a proprietary SCSI interface or can I use the PCI version I already have?

The CartDev/SNASM package uses standard SCSI II interface. The SCSI card we supply with the package is made by Adaptec. If your SCSI interface is Adaptec compatible, then it should work with SNASM.

Dear DTS:
As a game developer interested in moving towards Saturn and 32x projects, how do I find information on price and availability of Saturn and 32x development systems?

If you are a third party developer, contact your account executive. If you are a SEGA developer, contact your producer. You may contact DTS for the latest price list of all our development equipment.

32XPOSED

On November 10, 1994, SEGA held its 32X Developers Conference entitled "32XPOSED, all the secrets laid bare" at the Hotel Sofitel in Redwood City. The conference covered Graphics Development, Sound, SH2 Programming Techniques, CD Development, 32X in a Genesis environment; CartDev and the 32X, PAL programming, and finally a Q & A session. A welcome address was delivered to approximately 200 attendees by Mike Larkin; and presentations were made by Jesse Taylor, Toshi Morita, Bob Hardy, Chris Newcombe, Rob Powers, and Marty Franz. The event was capped by an evening of wine and cheese and the naming of five lucky and happy winners of the new 32X game system accompanied by the "virtua racing" game cartridge. Thanks to all the presentors, attendees, and conference coordinators for making this a successful event! We are looking ahead to March as we present SEGA DevCon '95. Be there!

Tools

Source code will soon be available for the following tools. Contact DTS if you would like a copy. E-Mail: dts@segaoa.com

SaturnSP_C 2.0

This plug-in will operate on either a 24-bit RGB image or an 8-bit paletted image. It will convert the output to an ASCII header file, which can be compiled and linked into a C program to run on the Saturn. The format is appropriate for Saturn sprites. Plug-in for Photoshop™ and DeBabelizer™.

IMB PC/DOS
SCSI card

BRIP

Converts a paint-program image file into Saturn background – compatible tiles, palettes, and descriptors.

IMB PC/DOS
SCSI card

SConvert 2.0

A DOS command line utility which converts bitmap images into a C language source file suitable use as a sprite texture in a Saturn program. It reads a subset of PCX and Macintosh PICT format images. These are written to a file sequentially, one line at a time. The number of vertical lines is virtually unlimited. Pixels which are pure black in the source bitmap can be encoded in the output to be transparent, if the sprite's transparency is enabled.

IMB PC/DOS
SCSI card

Saturn_Predistort

This plug-in will operate only on a 24-bit RGB image. It will spread the input data into a rectangular image, using a scaling algorithm similar to Photoshop's. This operation is appropriate for Saturn sprites.

IMB PC/DOS
SCSI card

S12IBM 1.3

Simple filename conversion utility. It will convert a sequence of SoftImage filenames or other animator filenames to a sequence of IBM legal filenames. A legal IBM filename has eight characters before a single period, which is followed by a three-letter extension. It also has an option to rename the files using sequential numbers.

IMB PC/DOS
SCSI card

Third Party Licensing has just received new ID Table standards from DTS. These changes will be implemented effective January 1, 1995. For more information, please contact:

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It's a Boy!

We are happy to announce a new member of the DTS family. Scott Avery Merritt was born on November 1, 1994 at 7:37 p.m. He weighed 7 lbs., 13 oz., and was 20 inches long! Proud parents Evelyn (our very own Documentation Manager) and Bob, and young Scott Avery are doing just fine. Welcome aboard!

Documentation

Listed below are the complete sets of Saturn documentation as of December 19,1994. If you wish to order complete Saturn documentation, please order by set (i.e. Set 1, Set 2, or Set 3). If you already have the sets, and would like to order new documents (as indicated by a "bullet"), please let us know. You may contact us by E-mail or use the Fax back section on the last page of the newsletter.   DTS E-Mail: dts @segaoa.com   Fax: (415) 802-1717

SET 1
SATURN PROGRAMMING MANUALS

Saturn Introduction Manual	ST-155-062094
SEGA of America-Introduction to Saturn Game Development	
Saturn Overview Manual(temporary version 1)	ST-103-R1-040194
VDP1 User's Manual	ST-13-R2-120693
VDP1 User's Manual Supplement	ST-13-SP1-052794
VDP2 User's Manual	ST-58-R2-060194
• **SCU User's Manual**	**ST-97-R5-072694**
Saturn SCSP User's Manual	ST-77-R2-052594
• **SEGA Saturn Dual CPU User's Guide**	**ST-202-R1-120994**
• **Saturn Software Library**	**ST-209-110194**
Saturn Software Library Supplement	ST-114-041294
• **Software Library User's Manual**	**ST-78-011094**
• **Saturn SEGALIB/MAN README**	**ST-DISK-05-101794**
• **Saturn SEGA SMP/MAN README**	**ST-DISK-06-101794**

SATURN DEVELOPMENT TOOLS MANUALS

• **Saturn/32X Graphics References ver. 2.0**	**ST-124-R1-091394**
Sample Data User's Manual	ST-160-062094
Authoring Environmental Guide	ST-91-062794
Sound Development Manual	ST-81-R2-031094
Saturn Sound Driver System Interface	ST-166-050494
Sound Programming Debugger User's Manual	ST-65-R1-0311494
Microcomputing Developing Int. Environment for Macintoch	ST-80-R2-050994
Boot ROM User's Manual	ST-79B-R1-062294
SATURN Readme file	ST-207-10194
• **System Library User's Manual**	**ST-162-062094**
• **Program Library User's Guide 3**	**ST-135-R1-062094**
External specifications Saturn file system Library	ST-39-R2-011094
External Specification Doc. Saturn Stream System	ST-98-031194
• **Backup Library User's Manual**	**ST-199-092994**
• **Backup System Production Standard**	**ST-203-100494**
SATURN Backup Data Name Registration Forms	ST-204-100794
SH2 Dynamic Load Linkage Editor	ST-19-R1-B-050994
Saturn ROM Emulator Installation Guide	ST-153-061794
• **CD Development Tool Description File**	**ST-211-110494**
Simple CD Simulator User's Manual	ST-161-R1-092994
Virtual CD System User's Manual/Prelim. Version	ST-129-R1-062294
Vitual CD System (Release 3) Limitations	ST-182-081294
Disc Format Standards Specification Sheet	ST-40-R2-062294

SET 2
SATURN GRAPHICS TOOLS MANUALS

Photoshop Plug In User's Manual	ST-125-042594
SEGA Converter User's Manual	ST-126-042594
Simple Animator User's Manual	ST-130-050394
2D Motion Editor User's Guide	ST-140-051894
Map Editor User's Manual	ST-127-042594

SET 3
SATURN SOUND TOOLS MANUALS

Sound Development Manual	ST-81-R2-031094
Sound Editor User's Manual	ST-101-031594
Sound Tool Guide	20-Apr-94
Wave Editor User's Manual	ST-99-R1-042594
Standard MIDI File: Converter Specifications	ST-66-121593
• **Tone Editor User's Manual**	**ST-68-R1-042594**

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FAX Back

We at SEGA of America would like to know your opinion on this issue of the DTS Developer Newsletter, and what you would like to see to make it better. Please take a moment to fill out the information below and mail or FAX it to SEGA.

What did you like/dislike about this issue of SEGA DTS Developer News? _____

_____

How can DTS better support your development efforts? _____

_____

What features/information would you like to see included in upcoming issues? _____

_____

If you need documentation, list the title and number below. You must have a SEGA non-disclosure document on file to receive documentation. If you have not signed a non-disclosure, contact DTS.

_____

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Please provide your E-Mail address to facilitate communication. _____

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