

# ***VR Stamp™ Toolkit*** **Quick Start Guide**

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With FluentChip™ Technology



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Welcome to the **VR Stamp™ Toolkit** and the world of low-cost, high-performance speech recognition! The materials in the VR Stamp Toolkit allow a developer to produce innovative, powerful products that combine a high level of system integration, low cost, and leading-edge speech technologies. This Quick Start Guide discusses the installation of all of the required components and also how to set up the Module Programmer Board (MPB) to start your first project. It assumes the reader is an experienced software developer who understands assembly and/or C language programming, embedded systems development methods, relocatable object code, and similar general concepts, but who may not be familiar with the Sensory RSC-4x family specifically.

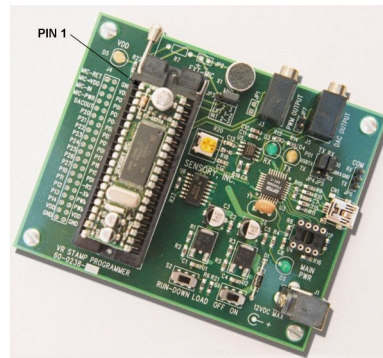
**The VR Stamp Toolkit supports FluentChip™ Technology**, which is capable of running HMM (Hidden Markov Model) and neural network based speaker independent (SI), speaker dependent (SD), speaker verification (SV), speech and music synthesis, and sound effect technologies on Sensory's RSC-4x family of microcontrollers. Additional speech tools are included such as **Quick T2SI-Lite™**, which offers text-based vocabulary development in multiple languages, as well as **QuickSynthesis™ 4**, which allows speech to be compressed for low data rate synthesis. Development for the VR Stamp is done using the **Phyton Project-SE** located on the **MCC-SE-LTV CD**, which also includes the limited-time version of the C compiler. These tools are designed to run under the Windows 2000 and XP operating systems, and require a free USB port.

#### The VR Stamp Toolkit allows you to:

- ▶ Download an application program from the PC to VR Stamp using the Module Programmer Board
- ▶ Develop VR Stamp applications
- ▶ Sample key Sensory speech technologies
- ▶ Demo common speech applications

#### This package contains:

- ▶ VR Stamp™-Serial EEPROM Version Module (2x)
- ▶ Module Programmer Board
- ▶ USB Serial Cable
- ▶ Speaker
- ▶ 120v Power Supply
- ▶ VR Stamp™ Tools CD (includes FluentChip™, Quick T2SI Lite™, QuickSynthesis™ 4, Speech Tools, Driver Links & Demos)
- ▶ Phyton Project-SE and MCC-SE-LTV CD



The VR Stamp Toolkit is covered by a 90 day warranty and includes limited email technical support during this period at [vrstampsupport@sensoryinc.com](mailto:vrstampsupport@sensoryinc.com).

## Getting Started

### Step One: Installing Sensory Tools

- 1) **We recommend that you read all of the documents available on this CD before attempting to install any software or connect the Module Programmer Board.**
- 2) Launch the FluentChip™ Installer. This will install the speech technology libraries necessary for the VR Stamp.
- 3) Launch the Quick T2SI-Lite™ Installer (*the terms Quick T2SI™ and Quick T2SI Lite™ are interchangeable for documentation purposes.*) This will allow you to develop Speaker Independent speech recognition command sets using tunable text input. Quick T2SI-Lite™ is similar to the tool found in the full Quick T2SI™ Toolkit (sold separately), but allows sets up to 12 words maximum without any time or number of vocabulary build limits. Upgrades are available.
- 4) **Optional:** Install an included language pack for Quick T2SI if you are interested in supporting speech recognition in another language.
- 5) Register your Quick T2SI-Lite program on the Internet at: <http://fluent-speech.com/t2siLiteReg>. Fill in the required information, and enter the **registration code** located on the CD envelope. (Sensory's Privacy Policy is linked to this page.) Read the included documentation to understand Quick T2SI vocabulary development and usage.
- 6) Launch the QuickSynthesis™ 4 installer. This will allow you to compress speech playback files to fit onto the VR Stamp.
- 7) Launch the SensoryLoader4 (SL4) Installer. This will allow the PC to download demos and applications to the VR Stamp via the Module Programmer Board. *If the computer returns an installation error due to missing files, please run "Windows Update" from the Microsoft website.*
- 8) **Optional:** Extract the provided demos to a convenient local directory. Instructions for using each demo are included in the .zip archives.

### Step Two: Installing Phyton Tools

- 1) Insert the Phyton MCC-SE-LTV CD, and then install the Project-SE which will also install the C Compiler. The VR Stamp™ Toolkit includes a 3 month limited-time version license for the C Compiler, and more in-depth information is included with the CD.

### Step Three: Installing USB Drivers and Connecting the MPB

- 1) This procedure is covered in-depth in the RSC-4x Module Programmer Board Manual (80-0294). Please refer to this manual for more detailed instructions:
  - a. Download and install USB and VCP drivers
  - b. Match COM ports between MPB and Sensory Software Applications

### Step Four: Programming the VR Stamp Module

- 1) Install the VR Stamp module into the 40 pin DIP ZIF socket on the MPB following industry standard practices to minimize ESD issues. Pin one is labeled on the VR Stamp, and pin one of the ZIF socket is on the corner closest to the ZIF lever.
- 2) To download a demo, sample or application, set the RUN/DOWNLOAD switch to DOWNLOAD, and set the ON/OFF switch to the ON position. Launch "SensoryLoader4". Download the desired demo, sample or application.

## Step Five: Running Applications using the Module Programmer Board

- 1) If required for your application, assemble and connect hardware such as LED's and switches to the port pins on the programmer. To run samples and demos provided in this toolkit, please refer to the diagram "Wiring VR Stamp for Demos and Sample Programs" in the RSC-4x Module Programmer Manual (80-0294).
- 2) To run a demo, sample or application, set the RUN/DOWNLOAD switch to RUN, and then set the ON/OFF switch to ON position.

That's it for the initial setup. Please refer to the RSC-4x Module Programmer Manual (80-0294) and the VR Stamp with Serial EEPROM Speech Recognition Module Data Sheet (80-0274) for more in-depth details on configuring and programming the VR Stamp.

## Additional Resources

For IC specifications and on-chip hardware resource information, refer to:

- ▶ RSC-4128 Data Sheet, (80-0206).

For programming with the FluentChip™ Technology library, refer to:

- ▶ FluentChip Reference help file

For assembling and linking programs, refer to:

- ▶ Phyton IDE QSG (80-0247)

For information on the "Quick T2SI™ Toolkit" (offered separately), refer to:

- ▶ Quick T2SI Toolkit Product Brief (80-0245)

Contact a sales associate at [sales@sensoryinc.com](mailto:sales@sensoryinc.com) for Quick T2SI upgrade information.

Contact a sales associate at [sales@phyton.com](mailto:sales@phyton.com) for C Compiler upgrade information.

For the VR Stamp schematic, refer to:

- ▶ (70-0066)

For the Module Programmer Board schematic, refer to:

- ▶ (70-0069)

Check for updates, additional language packs and the most recent versions of the technology libraries on the Sensory website at <http://www.sensoryinc.com>.

## CD Contents:

### CD Number 1: VR Stamp™ Toolkit CD

- 1) FluentChip™ Technology Library with ReadMe
- 2) Quick T2SI-Lite™ Application with ReadMe and Release Notes
  - a) Language Packs
    - i. British English
    - ii. French
    - iii. German
    - iv. Italian
    - v. Japanese
    - vi. Korean
    - vii. Mandarin
- 3) QuickSynthesis™ 4 Tool with ReadMe
- 4) SensoryLoader4 application with ReadMe
- 5) USB Driver Download Link
- 6) Demos:
  - a. (54-0126) T2SI Multi-Word Word Spotting (with instructions)
  - b. (54-0128) Word Spotting Speaker Dependent (with instructions)
  - c. (54-0177) T2SI - Home Appliance - VR Stamp Version (with instructions)
  - d. (54-0205) T2SISD – Poker Game Demo (with instructions)
  - e. LipSync, Real-Time LipSync, SoundSource, SonicNet Video Demos
- 7) Documentation:
  - a. Data Sheet: RSC-4128
  - b. Design Guide: Speech Recognition Hardware
  - c. Design Guide: Speech Recognition Software
  - d. Design Note: Microphone Housing
  - e. Design Note: Selecting a Microphone
  - f. Design Note: Low Power Mode Applications
  - g. Design Note: LipSync Tool
  - h. Design Note: SonicNet Technology
  - i. Design Note: SoundSource Technology
  - j. Design Note: System Level ESD Mitigation
  - k. FluentChip\_Reference
  - l. Phytion\_IDE\_QuickStartGuide
  - m. QuickSynthesis 4 reference
  - n. Quick T2SI QuickStartGuide
  - o. QuickT2SIHelp
  - p. Quick T2SI™ Product Brief
  - q. RSC-4x Module Programmer Board User Manual
  - r. RSC-4x Module Programmer Board Schematic
  - s. VR Stamp™ with Serial EEPROM Data Sheet
  - t. VR Stamp™ Quick Start Guide
  - u. VR Stamp™ Schematic

**Note:** Additional RSC-4x documents are included in the \docs folder of your FluentChip installation.

### CD Number 2: Phytion MCC-SE-LTV CD

- 1) Phytion Project-SE with Assembler and Linker and limited-time version of the C Compiler

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## The Interactive Speech™ Product Line

The Interactive Speech line of ICs and software was developed to “bring life to products” through advanced speech recognition and audio technologies. It is designed for cost-sensitive consumer-electronic applications such as home electronics, home automation, toys, and personal communication. The product line includes the award-winning RSC-4x general-purpose microcontrollers and tools, the *VR Stamp™* 40 pin DIP module and tools, the SC series of speech and music synthesis microcontrollers. Our suite of software development kits are designed to run on non-Sensory processors and DSP's, and support most popular operating systems.

### **RSC Microcontrollers and Tools**

The RSC product family contains low-cost 8-bit speech-optimized microcontrollers designed for use in consumer electronics. All members of the RSC family are fully integrated and include A/D, pre-amplifier, D/A, ROM, and RAM circuitry. The RSC family can perform a full range of speech/audio functions including speech recognition, speaker verification, speech and music synthesis, and voice recording/playback. The family is supported by a complete suite of evaluation and development toolkits.

### **Speech Recognition Modules and Tools**

The VR Stamp™ is a complete speech recognition module based on the RSC-4x and is ideal for fast design and easy production. A low-noise audio channel and standardized 40-pin DIP footprint allow rapid prototyping, less debugging, and shorter time to market. The *VR Stamp Toolkit* includes everything needed to get started today, including VR Stamps, Module Programming Board, sample applications, and a complete set of development tools featuring the Phyton IDE and limited-life C compiler, QuickSynthesis™ 4 and Quick T2SI-Lite™ speech tools.

### **SC Microcontrollers and Tools**

The SC-6x product family features the highest quality speech synthesis ICs at the lowest data rate in the industry. The line includes a 12.32 MIPS processor for high-quality, low data-rate speech compression and MIDI music synthesis, with plenty of power left over for other processing and control functions. Members of the SC-6x line can store as much as 37 minutes of speech on-chip and include as many as 64 I/O pins for external interfacing. Integrating this broad range of features into a single chip enables developers to create products with high quality, long duration speech at very competitive price points.

### **FluentSoft™ Technology**

FluentSoft™ Recognizer is the engine powering the FluentSoft™ SDK. It provides a noise-robust, large-vocabulary, speaker-independent solution with continuous digit recognition and word-spotting capabilities. This small-footprint software recognizes up to 5,000 words; runs on non-Sensory processors including Intel XScale, TI OMAP, and ARM9 platforms; and supports operating systems such as MS Windows, Linux, and Symbian.

### **3Dmsg™ Technology**

3Dmsg's ([www.3Dmsg.com](http://www.3Dmsg.com)) Animated Speech technology offers animated avatars with advanced speech recognition and synthesis capabilities for use in smartphones, language trainers, and kiosk applications. Facial expressions can be configured to show emotions and lip synchronization can be automatically driven from voice or text data.

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