

# Design Advisory: Do you need to update to VocalFusion v2.2.2?

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## 1 Introduction

The latest release of the VocalFusion Stereo software (v2.2.2) includes updates to the default settings for Automatic Gain Control (AGC) which change the out-of-the-box performance of the XVF3500 voice processor.

## 2 What has changed

The VocalFusion XVF3500 voice processor provides an integrated DSP solution which performs stereo Acoustic Echo Cancellation (AEC), beam forming, noise suppression and AGC. Enabling developers of smart TV's, set top boxes, soundbars and digital media adapters to integrate far-field voice capture capability.

The latest release of the VocalFusion Stereo software (v2.2.2) has been tuned to work with Automatic Speech Recognition (ASR) engines out of the box and the default settings of some AGC parameters have been updated.

The table below details the changes to AGC parameters between v2.2.1 and v2.2.2 of the VocalFusion Stereo software.

parameter	old value (v2.2.1)	new value (v2.2.2)	description
AGCONOFF	1 (ON)	0 (OFF)	Disable AGC and used fixed gain
AGCGAIN	1.0	40.0	Set the gain level to 40.0 (⇒ 32 dB)
AGCMAXGAIN	0.0	40.0	Set the max gain level to 40.0 (⇒ 32 dB)

**Table 1:**  
Default AGC  
parameter  
values

### 3 Impacted X MOS Part Numbers

This advisory applies to the following VocalFusion development kits and silicon devices.

**Table 2:**  
Impacted  
X MOS part  
numbers

part number	description
XVF3500-FB167	XVF3500 voice processor
XK-VF3500-L33	VocalFusion Stereo Dev Kit
XK-VF3500-L33-AVS	VocalFusion Stereo Dev Kit for Amazon AVS

### 4 What to do next

#### 4.1 Already built your own prototype board?

If you have already built your own board and completed the tuning process as described in the *VocalFusion Stereo Fine Tuning Guide* you don't need to do anything.

For other users who are just beginning the prototype development stage we recommend that you update to the latest software.

#### 4.2 Using a VocalFusion development kit as originally shipped?

If you are using one of the VocalFusion development kits listed in Table 2, as originally shipped, to evaluate the performance of the XVF3500 as a front-end audio solution for an ASR, we recommend you download the latest software and update the firmware on the board.

To update the software on the development kit follow the steps below.

1. Install X MOS xTIMEcomposer tools, v14.3.3 or later, on your PC (Windows, MAC or Linux). These are freely available to download from: <http://www.xmos.com/tools>.

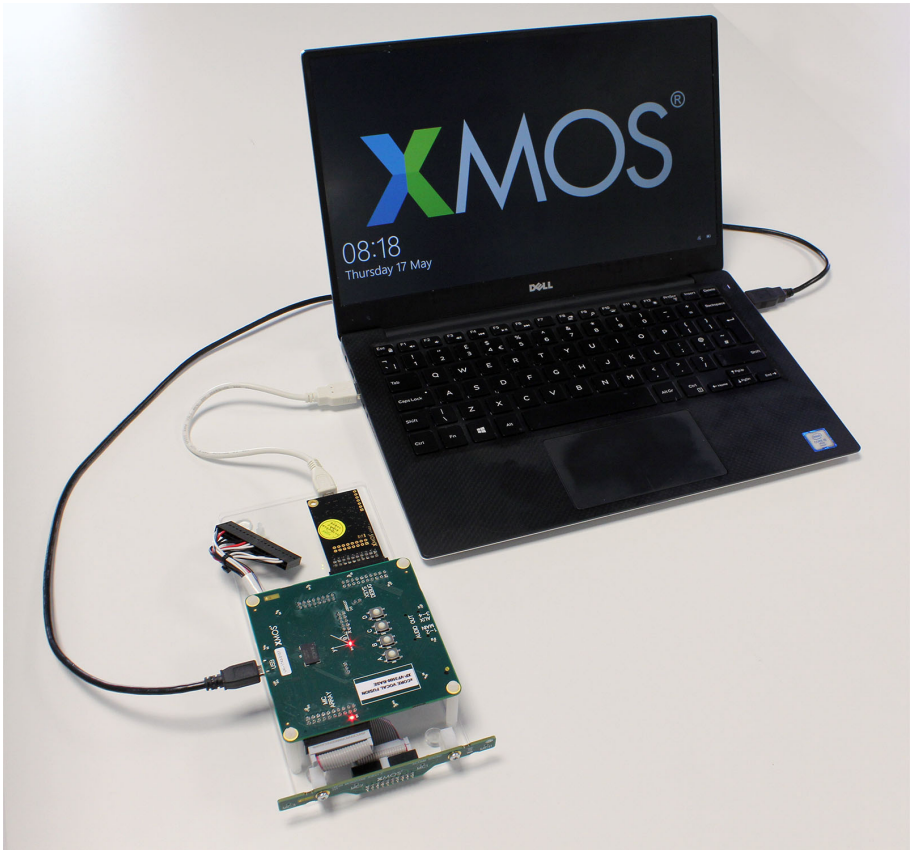
Use your existing MyX MOS login or create a new account to complete this step.

2. Download the latest software for the development kit from: <https://www.xmos.com/published/vocalfusion-stereo-evaluation-binaries>.

A MyX MOS account is required to complete this step.

3. Connect the xTAG debug adapter supplied with the development kit. Note: the development kit may be supplied with either an xTAG2 or xTAG3 debug adapter.

- ▶ Plug the xTAG adapter to the **XSYS DEBUG** connector on the development kit.
- ▶ Use the supplied USB cable to connect the debug adapter to the host PC.
  - ▶ If using xTAG2, use a USB A extension cable.
  - ▶ If using xTAG3, use a USB A to microB cable.



**Figure 1:**  
Updating  
VocalFusion  
Development  
Kit software

4. Connect the microB USB connector on the development kit to either a standalone USB power supply, or host PC, using the supplied USB A to microB cable.
5. Flash the new software on to the development kit.

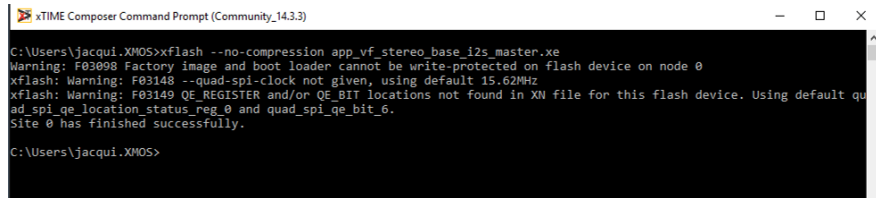
For **VocalFusion Stereo Dev Kit (XK-VF3500-L33)** extract the binary image `app_vf_stereo_base_usb.xe` from the zip archive and then follow the steps below.

For **VocalFusion Stereo Dev Kit for Amazon AVS (XK-VF3500-L33)** extract the binary image `app_vf_stereo_base_i2s_master.xe` from the zip archive and then follow the steps below.

#### **Windows users**

- ▶ Open an xTIMEcomposer command prompt:  
**Start ▶ XMOS ▶ xCommand Prompt**
- ▶ Navigate to your folder containing the binary and enter:

```
xflash --no-compression <filename>.xe
```



```
xTIME Composer Command Prompt (Community_14.3.3)
C:\Users\jacqui.XMOS>xflash --no-compression app_vf_stereo_base_i2s_master.xe
Warning: F03098 Factory image and boot loader cannot be write-protected on flash device on node 0
xflash: Warning: F03148 --quad-spi-clock not given, using default 15.62MHz
xflash: Warning: F03149 QE_REGISTER and/or QE_BIT locations not found in XN file for this flash device. Using default quad_spi_qe_location_status_reg_0 and quad_spi_qe_bit_6.
Site 0 has finished successfully.
C:\Users\jacqui.XMOS>
```

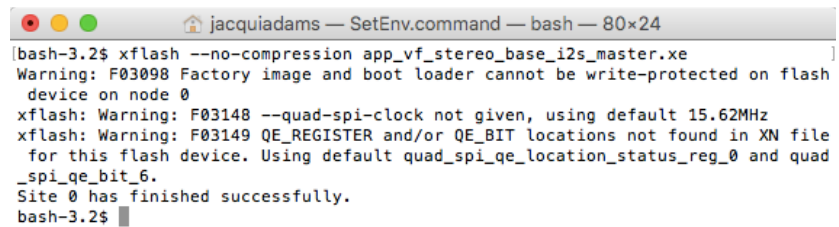
### Mac users:

- ▶ Open an xTIMEcomposer terminal session and run:

**Finder ▶ Applications ▶ XMOS\_xTIMEcomposer ▶ SetEnv.command**

- ▶ Navigate to your folder containing the binary and enter:

```
xflash --no-compression <filename>.xe
```



```
jacquiadams — SetEnv.command — bash — 80x24
|bash-3.2$ xflash --no-compression app_vf_stereo_base_i2s_master.xe
Warning: F03098 Factory image and boot loader cannot be write-protected on flash device on node 0
xflash: Warning: F03148 --quad-spi-clock not given, using default 15.62MHz
xflash: Warning: F03149 QE_REGISTER and/or QE_BIT locations not found in XN file for this flash device. Using default quad_spi_qe_location_status_reg_0 and quad_spi_qe_bit_6.
Site 0 has finished successfully.
bash-3.2$ █
```

6. Wait for the flashing process to complete. When complete the following message will be displayed:

Site 0 has finished successfully.

7. All done! You may now close the xTIMEcomposer command prompt and unplug the xTAG debug adaptor from both the PC and the development kit.



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