

# *AudioDrive*<sup>®</sup> Device Drivers

## for Windows 95<sup>®</sup>

Version 4.03.35

### Release Notes

May 23, 1996

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## About This Release

ESS Technology is providing updated Windows 95<sup>®</sup> drivers for the *AudioDrive*<sup>®</sup> family of audio chip products in this release. These drivers are complete updates to prior ESS releases for Microsoft Windows 95.

## Release Information

<b>Product:</b>	<i>AudioDrive</i> <sup>®</sup> Device Drivers, Version 4.03.35 for Microsoft <sup>®</sup> Windows 95 <sup>®</sup>
<b>Drivers:</b>	ESS reference designs of ES1878, ES1888, ES1868, ES1788, ES1688, ES1688/ES968, ES688, ES1488, and ES488.
<b>OS:</b>	Microsoft Windows 95
<b>Release Date:</b>	May 23, 1996

## Release Description

### *Version 4.03.35 Changes*

The following changes have been incorporated into the Windows 95 drivers:

1. Created the ES1878/ES978 driver set (Beta release) with IIS port support to provide IIS volume control.
2. Added slider control to each mixer driver that currently supports the ES938 3-D Spatializer effect hardware.
3. Added support to recognize and reflect hot-key master volume changes into all mixer drivers (except the ES488). Volume changes are not immediately reflected into Windows. Changes are checked for only during the beginning of wave or MIDI playback.
4. Modified ES938 treble, bass, and Spatializer effect level values in the OEMSETUP.INF file to specify default left/right channel settings. Left/right settings are needed by the driver to function consistently with existing mixer applications.
- 5.

**Version 4.03.27 Changes**

1. Modified DirectSound to use either single byte or demand mode DMA depending upon what the end user has selected. Previous drivers unconditionally used single byte DMA.
2. Moved ES1888 DirectSound playback from the first to the second DMA channel. This allows simultaneous .wav record and DirectSound playback to occur.
3. Defined a new devnode to support an integrated ES1688/joystick device.
4. Allowed the default hardware volume mapping table to be redefined by changing the OEMSETUP.INF file. An OEM would un-comment the 'HwVolumeMap' registry value and the associated sample table entries.
5. Added workarounds to eliminate the APM related .wav record and .avi playback general protection faults that occurred with prior drivers. The fix allows the audio hardware to be powered down if no .wav record and/or playback is active at the moment a suspend occurs. However, if .wav record and/or playback is active when a suspend occurs the audio hardware is not powered down but any active DMA is masked and the master volume is muted.
6. Re-enabled joystick port decoding for legacy devices. Recently joystick decoding was disabled for legacy devices if no joystick resource was defined in the logical configuration of the device. However, compatibility issues (e.g. unconditionally available DOS box joystick support) reversed this recent change.
7. Added a delay following ES1888 playback to better support type-f DMA. A type-f DMA optimization done in the version 4.03.13 driver set broke the previous type-f functionality.
8. Fixed a bug that caused a general protection fault when the Advanced button of the line-out mixer was pressed following an APM suspend/resume event.

**Version 4.03.14 Changes**

1. Fix a hardware-software timing problem that could cause a Windows general protection fault during an ESS configuration change. The problem only happens with certain types of configuration changes and only with legacy hardware implementations that use the read key sequence to be enabled.
2. Allow OEMs to specify the hardware volume button step rate. The default is 1 logical step per button press but this can be changed to 2, 3 or 4 steps per button press by specifying the DWORD registry value 'HwVolumeStep' and assigning it the desired step rate.

**Version 4.03.13 Changes**

1. Warning messages are now by default disabled. If an OEM wants warning messages (English only) the binary registry value 'Disable Warning' should either be deleted, or, set to a single byte data value of zero within the OEMSETUP.INF file.
2. Redefined external hardware volume software mapping levels. The old mapping levels provided too much attenuation overall. The new mapping levels expand the upper volume ranges and reduce the number of lower volume ranges.
3. Fixed bug in ES1888 single IRQ mode that left IRQE disabled.

**Version 4.03.09 Changes**

1. Prevent ES689 from taking over the FM DAC when ESFM is active.
2. Added programmed I/O support to the Direct Sound drivers.
3. Support ES1788/1888 audio devnodes that include a joystick I/O resource.
4. Added sustain pedal support to the OPL2/3 driver.
5. Support all interrupt driven ES1888 devices with one IRQ.
6. Made ES1868 audio device independent of the ES1868 control interface device.

**Version 4.03.04 Changes**

1. Added ES938 3-D Spatialization® support to the ES688/1688/1788/1868/1888 mixer drivers. By default, the ES938 support is disabled and no mixer driver control for 3-D Spatialization is available. For hardware that supports the ES938, the OEMSETUP.INF contains a section named [ES938.AddReg] which allows an OEM to enable the installation of the controls for ES938. In order to support ES938 controls, the OEMSETUP.INF needs to be modified prior to installing the Windows 95 drivers.
2. Added GPO0/GPO1 (General Purpose Output) mixer controls to the ES688/1488/1688/1788/1868/1888 mixer drivers. By default, GPO0/GPO1 support in the mixer driver controls is disabled. For hardware that supports GPO0/GPO1 applications, the OEMSETUP.INF contains a section named [GPO.AddReg] which allows an OEM to enable the installation of the controls for GPO0/GPO1 support. . In order to support GPO0/GPO1 controls, the OEMSETUP.INF needs to be modified prior to installing the Windows 95 drivers.
3. Modified the ES488/688/1488/1688 virtual drivers to be compatible with older wave/MIDI/mixer/auxiliary drivers.

### **Version 4.03.02 Changes**

1. Created ES1868 drivers.
2. Changed version number of all drivers to new release version number: 4.03.02. This new release number avoids conflicts with previously-released ESS Direct Sound drivers, which were assigned version number 4.00.950.
3. Altered the ES1888 record mixer to not use the hardware playback mixer. This means recording from the FM synthesizer and second wave channel is no longer possible. However, the full duplex capabilities of the hardware are now fully accessible for speakerphone applications.

### **Known Problems**

1. Drivers configured to use programmed I/O to do .wav data transfers may fail Windows 95 ACT wave tests that check the accuracy of the reported audio stream position.