
APPENDIX C Audio Example

The Audio Example (AE) Algorithm is an Audio Stream Processing (ASP) Algorithm with an Application Interface (API) that permits one to exercise control over various aspects of its operation. This appendix explains the details of this component of the Performance Audio Framework (PA/F) API.

C.1 Control, Status, and Command Registers

[Table C-1](#) gives a list of alpha code symbols for the AE Algorithm. For an explanation of the various forms of register usage, see the `DerivedTitle`.

Please keep the following in mind when reading this table:

- Default settings for control registers are shaded. Default settings result at power-up or reset.
- Bit-mapped registers allow the specification of multiple values simultaneously using the logical-or of any combination of the command or response for that register.
- Alpha code of type `write` is used to set values in registers, alpha code of type `read` is used to get values from registers, and alpha code of type `exec` is used to cause actions to occur.
- Numeric values for the preprocessor symbols shown in this table and appendix are provided in C-language form in the alpha code symbol file `P:\alpha\ae_a.h`.

The AE Algorithm has no command registers.

TABLE C-1 AE Application Alpha Code

Register	Alpha Code	Description
Status	readAEStatus	Return entire AE status structure.
Mode	readAEMode	Return AE Mode Control Register value.
	writeAEModeDisable	Disable AE operation.
	writeAEModeEnable	Enable AE operation.
Scale	readAEScaleQ15	Return AE Scale Control Register value.
	writeAEScaleQ15(0)	Disable AE scaling operation.
	writeAEScaleQ15(N)	Set AE Scale Control Register value, interpreting N as a Q15 number.

C.2 Mode

The AE Mode Control Register controls basic operation of the AE Algorithm. If zero, operation is disabled, and if non-zero, operation is enabled.

C.3 Scale

The AE Scale Control Register controls the operation of the ASP Example Algorithm:

- If the scale is zero, operation is disabled.
- If the scale is non-zero but the channel configuration of the audio stream input to the ASP Algorithm is not stereo, operation is disabled.

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- If the scale is non-zero and the channel configuration of the audio stream input to the ASP Algorithm is stereo, operation of the following mixing operations are enabled on a per-sample basis:

$$\text{Left}' = \text{Scale}' * \text{Left}$$

$$\text{Cntr}' = \text{Scale} * (\text{Left} + \text{Rght})$$

$$\text{Rght}' = \text{Scale}' * \text{Rght}$$

where these symbols are defined as follows:

Left: Left Channel audio stream input

Left': Left Channel audio stream output

Cntr': Center Channel audio stream output

Rght: Right Channel audio stream input

Rght': Right Channel audio stream output

Scale: AE Scale Control Register interpreted as a Q15 number

Scale': 1.0 - Scale

In this case, channel configuration of the audio stream output from the ASP Algorithm is 3-stereo.

Scale must be positive for proper operation. If it is negative, incorrect operation will result.

