



DSP
Concepts

AWE Core™

What is AWE Core?

AWE Core is the framework that allows Audio Weaver to run on a bare metal processor.

AWE Core also contains optimized embedded implementations of Audio Weaver's many audio modules.

AWE Core allows for:

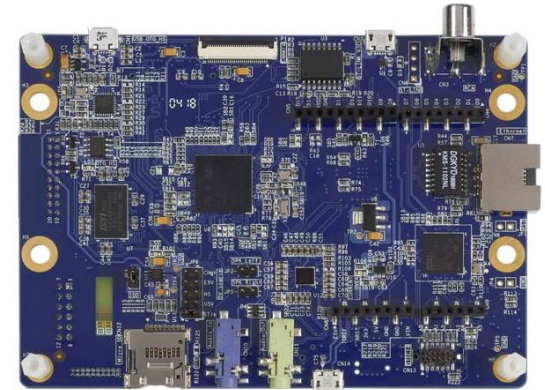
- Deployment of Audio Weaver Designs on Embedded Processors
- Live tuning of Audio Weaver Designs Using Exposed Interface with PC
- Third-Party and Custom Module Creation

What is AWE Core?

AWE Core is meant for usage on “**bare metal**” processors, typically used in smaller “embedded” devices like headphones and smart speakers.

Bare Metal => Processor with:

- No Built-In Operating System
- Low Power and Size Impact
- Allowance for Low-Level Control
- Lack of High-Level Features Found on PC + Linux processors



What is AWE Core?

Manufacturers of **Bare Metal Processors**

- ARM (Cortex-M)
- Cadence (Hifi)
- Analog Devices (SHARC)



Other Manufacturers Integrate 2 or more Bare Metal Processors into Larger Packages Called **SoC's (System on a Chip)**

- ST
- Renesas
- NXP

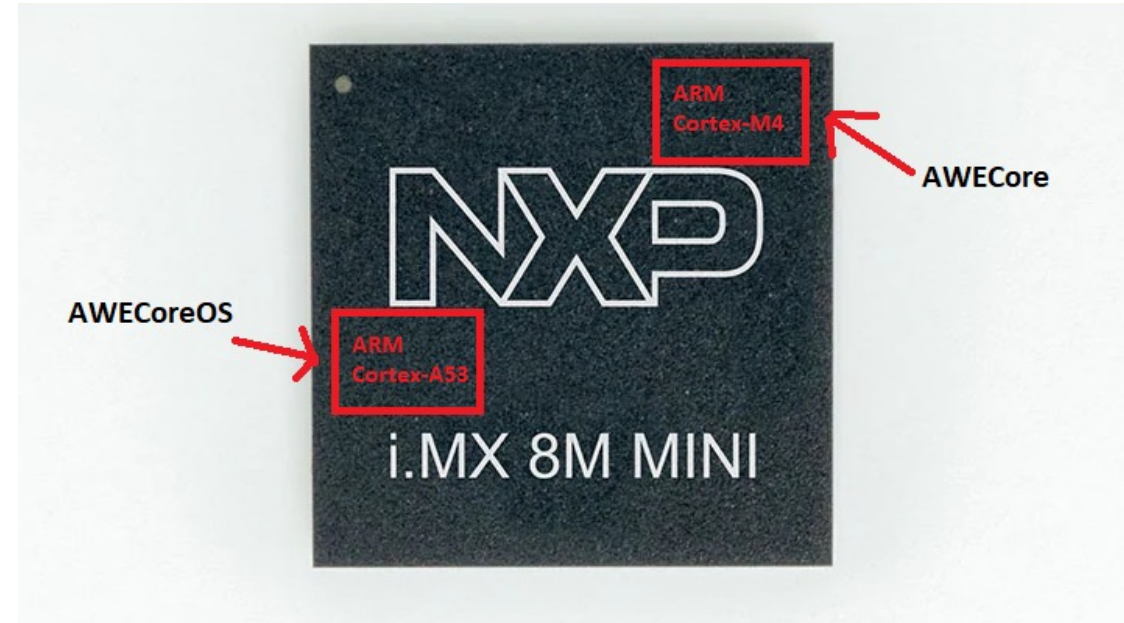


AWE Core vs AWE Core OS

AWE Core OS is a similar framework for integrating Audio Weaver in an audio product.

AWE Core OS is meant for more powerful processors which run an OS like Linux.

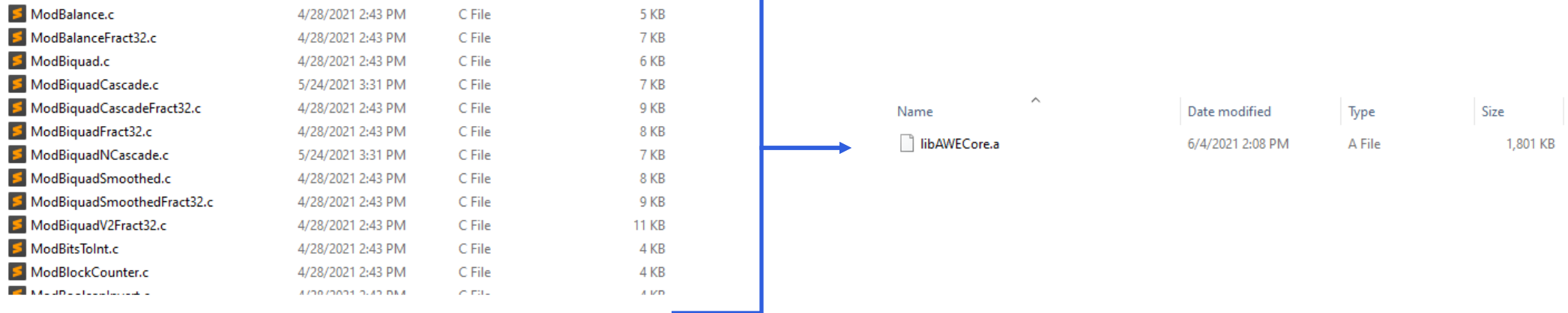
Some SoC's combine bare-metal processors and processors running an OS. **Both AWE Core and AWE Core OS can be used on these SoC's.**



The AWE Core Delivery

AWE Core is provided as a pre-compiled library to customers.

A pre-compiled library is a method of including code in a project, while at the same time making the actual code private and hidden from the customer.



The AWE Core Delivery

A typical AWE Core delivery from DSP Concepts consists of a .zip file with the following contents:

Name	Date modified	Type	Size
Audio	5/28/2021 1:56 PM	File folder	
Designs	5/28/2021 1:56 PM	File folder	
Docs	5/28/2021 1:56 PM	File folder	
Include	5/28/2021 1:56 PM	File folder	
Lib	5/28/2021 1:56 PM	File folder	
Source	5/28/2021 1:56 PM	File folder	
awecore_cortexm_release_notes.txt	5/4/2021 9:09 AM	Text Document	1 KB
awecore_release_notes.txt	5/4/2021 9:09 AM	Text Document	5 KB
dspc_vui_release_notes.txt	5/4/2021 9:09 AM	Text Document	2 KB
toolchainVersion.txt	5/4/2021 9:09 AM	Text Document	1 KB

The AWE Core Delivery

'Include' Folder contains the only public AWE Core code which a customer can view directly.

The code in this folder are called header files, and they are referenced and included directly within a customer's codebase to interact with the AWE Core library.

Name	Date modified	Type	Size
Audio	5/28/2021 1:56 PM	File folder	
Designs	5/28/2021 1:56 PM	File folder	
Docs	5/28/2021 1:56 PM	File folder	
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toolchainVersion.txt	5/4/2021 9:09 AM	Text Document	1 KB

Name	Date modified	Type	Size
ARM_CortexM7_TargetProcessor.h	5/4/2021 9:09 AM	H File	3 KB
AWECore.h	5/4/2021 9:09 AM	H File	24 KB
AWECoreUtils.h	5/4/2021 9:09 AM	H File	9 KB
Errors.h	5/4/2021 9:09 AM	H File	19 KB
Generic_TargetProcessor.h	5/4/2021 9:09 AM	H File	24 KB
ModuleList.h	5/4/2021 9:09 AM	H File	35 KB
ProxyIDs.h	5/4/2021 9:09 AM	H File	10 KB
StandardDefs.h	5/4/2021 9:09 AM	H File	4 KB
TargetProcessor.h	5/4/2021 9:09 AM	H File	4 KB

The AWE Core Delivery

'Lib' Folder contains the AWE Core library for the customer's target.

Some target processors can have several different types of AWE Core libraries built for them, depending on the specific 'toolchain' or 'IDE' used by the customer.

Name	Date modified	Type	Size
Audio	5/28/2021 1:56 PM	File folder	
Designs	5/28/2021 1:56 PM	File folder	
Docs	5/28/2021 1:56 PM	File folder	
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Name	Date modified	Type	Size
EWARM	5/28/2021 1:56 PM	File folder	
MDK-ARM	5/28/2021 1:56 PM	File folder	
SW4STM32	5/28/2021 1:56 PM	File folder	

Each of these folders contains an AWECore library for the Cortex-M7, specially built to support each IDE's compiler requirements.

The AWE Core Delivery

The library itself is a single file, whose extension depends on the embedded target.

On ARM targets, this file has a “.a” extension.

Name	Date modified	Type	Size
 libAWECore.a	6/4/2021 2:08 PM	A File	1,801 KB