AMBA Approved Nouns & Logo

AMBA (Advanced Microcontroller Bus Architecture) is always displayed in capital letters.

Approved Nouns:
- Brand
- Ecosystem
- Interconnect
- Interface
- Interface protocol
- Interface specification
- On-chip interconnect specification
- Protocol
- Specification
- Standard
- Trademark

Approved Logos:

Where appropriate, or to indicate affiliation or advantage of Arm, these may be used:
# AMBA: Specifications, Interface and Protocols Diagram

Key AMBA Specifications: CHI, ACE, AXI, AHB, APB

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<th>Key AMBA specifications</th>
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| CHI                     | Credited coherent protocol  
                          | Layered architecture for scalability |
| ACE                     | ACE       | ACE5   |        |        |             |
| AXI                     | AXI3      | AXI4   |        |        | AXI5        |
| AHB                     | AHB       | AHB    |        |        | AHB5        |
| APB                     | APB       | APB2   | APB3   | APB4   | APB5        |

- **CHI (Coherent Hub Interface)**: Credited coherent protocol, layered architecture for scalability.
- **ACE (AXI coherency Extensions)**: AXI is a superset of AXI — system-wide coherency across multicore clusters.
- **AXI (Adv. eXtensible Interface)**: AXI supports separate A/D phases, bursts, multiple outstanding addresses, OoO responses.
- **APB (Advanced Peripheral Bus)**: System bus for low bandwidth peripherals.

Selected AMBA specifications only. Other specifications include: ATB, ATP, CXS, DTI, GFB, LPI and LTI.
AMBA Usage Rules and Examples
AMBA Usage Rules

• AMBA can be used with or without the Arm logo prefix
• AMBA can be used on its own or with the interface notations such as AXI, CHI etc
• AMBA is a registered trademark and must be used according to the guidelines: Click here for the full AMBA trademarks page on our website

Generation and Specification Terminology

• AMBA [generation] [product name] and / or [approved noun]
  • E.g. AMBA 5 CHI Specification
  • We also have different versions and releases for each specification: these are known as Issues
  • E.g. CHI Issue E (long-form) should be shortened to CHI-E

Disclaimer: AMBA Generations: Overtime, reference to generations has been replaced by ‘issues’, as updates have become more frequent. You can choose whether to refer to AMBA generations when referencing a specific interface, protocol or specification.
## Use Examples

AMBA trademarks are for initial use. They do not need to be used subsequently in the same piece of text.

<table>
<thead>
<tr>
<th>Correct use</th>
<th>Incorrect use</th>
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<tbody>
<tr>
<td>Arm® AMBA® AXI interface</td>
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- **…product X fully implements the Arm® AMBA® specification…**
- **…product X supports Arm® AMBA®...**
- **…product X fully implements the Arm® AMBA® 3 protocol**
- **…product X is Arm® AMBA® 3 ready**
- **…product X fully implements the Arm® AMBA® 4 AXI specification**
- **…product X is Arm® AMBA® 4 AXI compliant**
- **…product X implements the Arm® AMBA® 3 protocol specification…**
- **…product X implements Arm® AMBA® 4**

Company X announces Arm® AMBA® 4 protocol support in product ABC, the coolest tool for functional verification

Company X announces SwiftAMBA® or AMBAhybrid or AMBA-fast

Today SwiftIT announced full support for the Arm® AMBA® 4 protocol...

SwiftIT AMBA® widget

Arm® CoreLink™ Dynamic Memory Controller supporting the Arm® AMBA® 4 AXI protocol

ACME AXI4™ Network Interconnect

- **Click here** for the full AMBA trademarks page on our website
- Unlike other Arm product trademarks, you do not always have to use the AMBA trademark preceded by the Arm trademark in first use of the AMBA trademark.
- You do not always have to use an approved noun after the AMBA trademark if it is followed by a product name or interface name with the appropriate generation designation.
AMBA Messaging

Standard Boilerplate Text

• AMBA (Advanced Microcontroller Bus Architecture) is a freely-available, globally adopted, open standard for the connection and management of functional blocks in a system-on-chip (SoC). It facilitates right-first-time development of multi-processor designs, with large numbers of controllers and peripherals.

Abbreviated Boilerplate Text

• AMBA empowers SoC design teams to create systems on chip that just work with efficient interconnect.

One Sentence Statement

• AMBA is the industry-leading choice for on-chip communications. It is an open, freely available and globally adopted standard, enabling SoC success for all.
The best technology: **Arm AMBA CHI and ACE interoperability, CCIX support for multi-die systems.** Plus functional safety mechanisms to achieve **ISO 26262 certification.**

Requirements. Like any cache, it allows nearby storage of data frequently used by the cores of an SoC (CPUs, DSPs, or GPUs) but it **benefits** from several differentiating characteristics that are **critical for modern memory systems:**

- A highly configurable structure
- Way partitioning
- Scratchpad allocation
- AMBA® bus interface
- ISO 26262 functional safety compliance

**AMBA messages are well articulated:**

- Best Technology
- Industry standard
- Critical for Modern systems
- Broad Applicability
- Ease of Integration
- Architecture Neutral
- Differentiating

The text makes precise use of trademarks and places AMBA side-by-side with key industry requirements.
Thank You
Danke
Merci
Merci
谢谢
ありがとう
Gracias
Kiitos
감사합니다
धन्यवाद
شكرًا
धन्यवाद
תודה