

AMBSI Policies

Ralph Marson, 2003-07-31

1. The designs of AMBSI1 and AMBSI2 are frozen as of 2003-Jul-31, in the sense described below. They are believed to conform to the design documents 70.35.10.01 (for AMBSI1) and 70.35.10.02 (for AMBSI2), and designers may rely on those documents. When necessary, additional documentation and clarifications will be issued.
2. Connections to the ALMA Monitor and Control Bus (AMB) by embedded systems without a general-purpose computer operating system must use either an AMBSI1 or an AMBSI2 board.
3. Changes to the AMBSI1 and AMBSI2 designs, if any, will be backward compatible. This means that, at the time of release of a new revision, all documented applications of that interface within the ALMA project will work identically if the AMBSI assembly of the previous revision is replaced with that of the new revision. This extends to any device-specific firmware used in AMBSI1; it should require only re-compiling and re-linking for installation in the new revision, with no source code changes. Nevertheless, modifications to the device hardware and/or device-specific firmware may be needed in order to take advantage of any new features, improvements, or bug fixes in the new revision of the interface. Compatibility includes all mechanical and electrical interfaces, subject to these precautions: Device-side connector pins identified as 'unused' or 'reserved' may be assigned a new function in a future revision, and therefore must be left unconnected by all devices. If and only if it is determined that a device-side connector pin is unconnected in all documented device designs that are current (not declared obsolete or temporary) at the time of release of a new revision, the function of that pin may be changed. For the purpose of this policy, 'documented application' or 'documented device design' means that the design is described in engineering drawings and/or specifications that are readily available to all ALMA staff members and of which both the System Engineering and Computing IPTs have been notified. These documents may or may not be officially approved by an IPT or by the Project.
4. Although the policy will be carefully enforced, it is impossible to provide an absolute guarantee that it will remain effective. If non-backward-compatible revisions are introduced by accident, every possible effort will be made to correct them. Nevertheless, circumstances could arise that make the introduction of non-backward-compatible revisions unavoidable.
5. Development and maintenance of device-specific code that resides in the AMBSI1 is the responsibility of the IPT responsible for the device in which the AMBSI1 is embedded. However, Computing will check that all device specific code adheres to AMB specifications and AMBSI1 programming guidelines, including, but not limited to the following:
 1. the code follows the structure presented in the AMBSI1 design document,
 2. the code maintains the CAN interrupt has the highest priority interrupt,

3. the code ensures that all aspects of the AMB protocol are met, in particular the 150 micro-second response time,
4. the code is readily available for inspection.

Many applications will not require device specific code, obviating the need for the above checks.

6. Similarly, the AMBSI1 has various jumpers and other options that may be configured differently for different applications. Such configuration is the responsibility of the embedding-device designer. The boards are delivered in a factory default configuration (including the generic firmware) which might not be right for a particular device.
7. The point of contact for all AMBSI-related issues will be the head of Control Software (Ralph Marson). Software maintenance for the AMBSI2 and the standard libraries on the AMBSI1 will be done within the Control Software group. An assigned engineer responsible for each AMBSI may be contacted directly for consultation regarding the design.
8. Samples of the AMBSI boards will be made available by the Computing IPT for prototype development of ALMA equipment. Production of AMBSI boards is the responsibility of the assigned engineer responsible for the appropriate AMBSI variant. Administration of production will remain with the Computing IPT. The Computing IPT will attempt to have production quantities available when needed; to facilitate this, designers must advise Computing of their production quantity requirements and schedules as early as possible. The cost of each production board will be attributed to the device in which it is embedded, just like any other part within that device.