alpha micro **Marketing Bulletin**

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LightningBASIC™ 1.0 and AMOS® 8.1 Introduced

A Quantum Leap In Speed For AM-8000™ and Eagle 800™ Systems

Dear Alpha Micro Dealer:

AM-8000™ and Eagle 800™ users can now take advantage of two software upgrades to their base AMOS software, one of which dramatically increases the performance of AlphaBASIC® applications.

AMOS 8.1: A Consolidation of Upgraded Utilities

AMOS 8.1 consists of four portions:

- **An update to Microsoft Windows XP Embedded®** with improved drivers, new security settings, and the latest operating system patches.
- **Improved XADMIN utilities** to help you remotely administer AMOS and XPE
- **Foreign Language Support** for French, German, Italian, and Spanish
- **Accumulated patches and bug fixes to AMOS**

The AMOS 8.1 update CD has been finalized and is now available. If you already have a current Alpha Micro Technical Support subscription, look for your AMOS 8.1 Update CD in the mail soon, or pick it up at the *True*GUI™ Dealer Meeting. For those dealers wishing to purchase a copy of the CD, see the reseller supplement attached to this Marketing Bulletin. To order one or more copies, contact Alpha Micro Order Administration at (800) 289-2574.

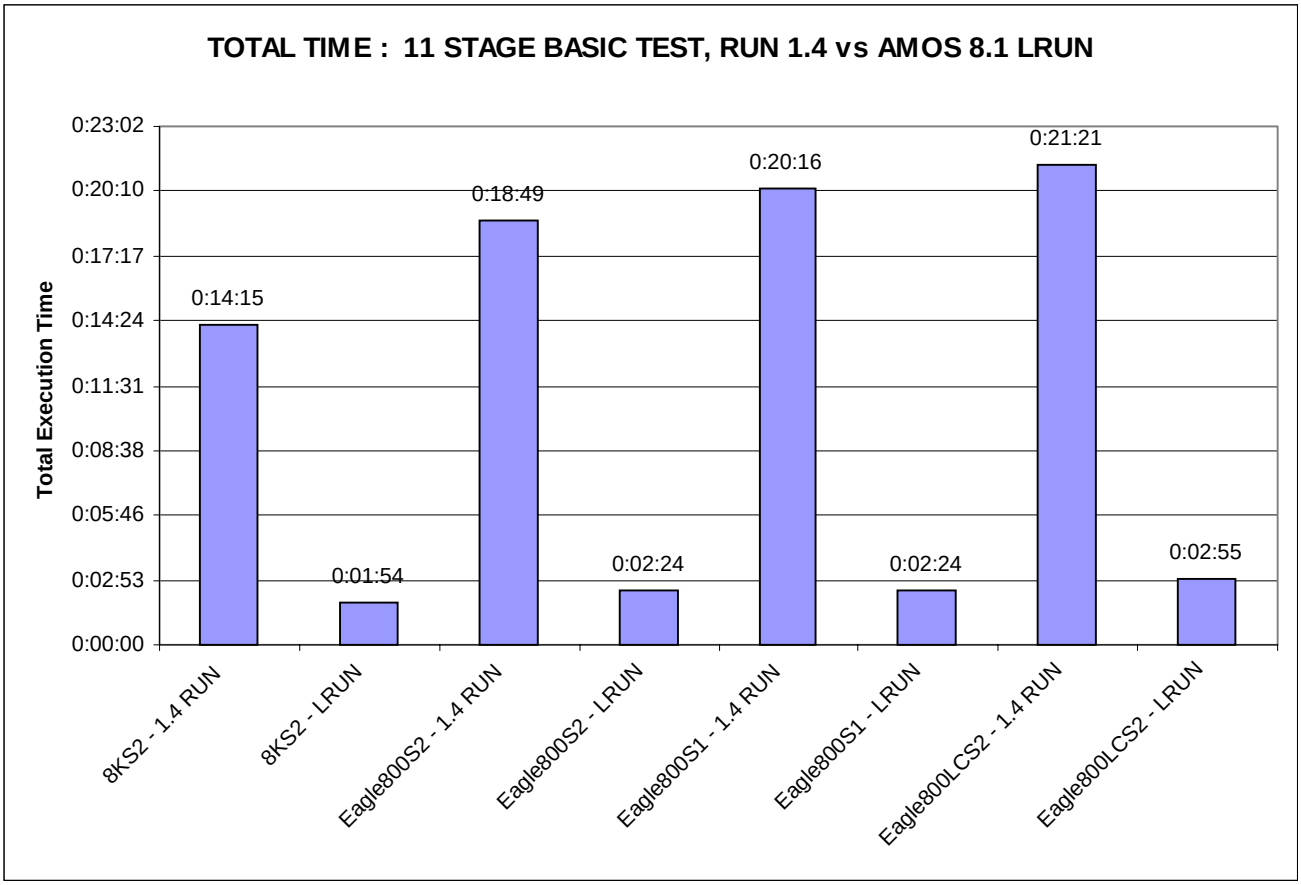
For further details on the improvements contained in AMOS 8.1, please see the AMOS 8.1 Release Notes, DSS-10618-82, on our web site. This document is also contained on the AMOS 8.1 Update CD. No new PIC Code is required for this upgrade to all AMOS 8.x users; your existing AMOS 8.0 PIC Code will function fine with this new release.

Turbocharge Your AlphaBASIC Applications With LightningBASIC

Our extensive Beta Testing has concluded, and we are now pleased to announce the debut of LightningBASIC, Alpha Micro's native x86 implementation of the AlphaBASIC runtime system.

LightningBASIC Benchmarks

Here are a few of the dramatic benchmark test results.



NOTE: For comparison purposes with older systems, the AM-6000 running 1.4 RUN took 4 hours, 17 minutes, and 22 seconds to complete the above 11 Stage BASIC test!

Eleven Stage BASIC Test Description

1. Create 1 million line sequential file
2. Read in the 1 million line sequential file
3. XCALL BASORT the 1 million line sequential file
4. Erase the 1 million line sequential file
5. FOR/NEXT loop 10 million times
6. 4 Math Equations 5 million times
7. 8 Math Equations with TRIG functions 5 million times
8. SQR(X) 5 million times
9. SQR(X) ABS(x) c=SQR(x)*ABS(x) 5 million times
10. LOG(X), LOG10(X) 5 million Times
11. RND(X) 5 million times

As you may know, AlphaBASIC is a semi-compiled language. The compiling process generates .RUN files which contain pseudo-op codes. .RUN files do not contain 68000 executable code. To execute AlphaBASIC code, the pseudo-code in the .RUN files must be interpreted by a runtime system, namely RUN.LIT. On AMOS 8.x systems, .RUN file execution therefore requires two-fold interpretation: RUN.LIT interprets the .RUN files, and AM8000.EXE interprets RUN.LIT's 68000 code.

LightningBASIC replaces both of these steps. When it starts to execute a .RUN file, it first translates the .RUN code into a type of object code much closer to native x86 code. That resulting code then executes with a minimum of interpretation, and entirely without 68000 emulation. Take a look at the accompanying performance figures to see how this technique affects program execution speed.

LightningBASIC is a two-tiered product. You purchase only what you need. The PIC Code determines which features are enabled.

Tier 1: The "Faster RUN.LIT", Plus An Interactive AlphaBASIC Debugger

The first level is comprised of the core LRUN runtime system, along with an interactive debugger similar to AlphaFIX.

The "Faster, smarter RUN.LIT"

LightningBASIC makes your product updates easier than ever: A big advantage of the design is that the .RUN files you create on any vintage Alpha Micro system are compatible with both AMOS 8.1 and with older AMOS versions with *zero changes*. The default compiler is the 1.4 version, virtually identically to the COMPIL.LIT distributed with AMOS 2.3A. For sites that use 1.3, such as Metropolis environments, make the 1.3 COMPIL.LIT and BASIC.LIT the live versions, but leave the newer RUN.LIT in place – it can handle 1.3 as well as 1.4 .RUN files! This means you can now run a mixture of 1.3 and 1.4 .RUN files on the same system, without compatibility concerns.

And if your existing .RUN files use any features not currently supported by LightningBASIC, it passes the job on to the correct version of ORUN.LIT or NRUN.LIT!

Finally, all XCALLs that work on AMOS 8.0 (which seems to be all of them), should work with LightningBASIC "as is". LightningBASIC runs most XCALLs as .M68 code *and* maintains all the critical AlphaBASIC data areas in the AMOS job's memory, just like older RUN.LITs.

Speed Up The Development Process With The Interactive AlphaBASIC Debugger

Think of LDBG as AlphaFIX for .RUN files: First, it decompiles the .RUN file and displays it on the screen in a multi-color GUI format. You can set breakpoints in the decompiled code, single step through the code, and at any point, display the values of variables. The decompiled code is similar to that in the Tier 2 Decompiler product below.

The initial release of LDBG runs only on the system console. It cannot be run on remote terminals or telnet sessions.

Tier 2: An AlphaBASIC Decompiler

Have you lost some source code but need to get a client out of a jam? The LightningBASIC Decompiler is your solution: You can decompile a .RUN into a source file that you can use to correct a problem or add a feature.

Some caveats are in order: For example, during the compile process, the names of variables are lost. Therefore, during the decompilation process, variables are assigned substitute names that don't mean much. For example, a variable originally named INVOICE'NUMBER might decompile to AQ3. Second, a recompiled source file will not have the same hash total as the original .RUN file, due to differences in where variables are defined. However, unlike previous AlphaBASIC decompiler efforts, we are certain that ours will recompile the decompiled source into fully functional .RUN files that operate exactly the same as the original programs.

The Decompiler will be available as an optional component of a subsequent release of LightningBASIC.

At Last, A Unified Runtime System

Until now, there have been multiple versions of RUN.LIT:

- **RUN.LIT 1.3 (ORUN.LIT):** This is the "traditional" version of RUN, with the longest history and the broadest compatibility. It supports "old ISAM" and is required by Metropolis. The AMOS 8.x version of 1.3 RUN is version 8.3.

- **RUN.LIT 1.4:** For many years, the default version of RUN distributed with AMOS has been 1.4, which added ISAM Plus support. Because 1.4 COMPIL was distributed as the default COMPIL for many years, many dealers have unintentionally converted their .RUN files to require RUN 1.4, even if their source code would have compiled fine under 1.3 COMPIL. If 1.4 RUN detects a 1.3 .RUN file, it will attempt to invoke ORUN.LIT to execute that file. Conversely, however, RUN 1.3 will not execute programs compiled with COMPIL 1.4, and will simply terminate with an error message. The AMOS 8.x version of 1.4 RUN is version 8.4.

- **YRUN.LIT:** Introduced with AMOS 8.1, YRUN and YCOMPIL are extended versions of AlphaBASIC 1.4 which support larger program sizes, more variables, and more labels. YRUN allows dramatically larger programs to be created.

- **ZRUN.LIT:** Like YRUN, but for BASIC 1.3.

- **RUNP.LIT:** The runtime system for AlphaBASIC Plus, a significantly different dialect of AlphaBASIC.

- **RUNX.LIT:** A version of RUN 1.4 that supported hardware floating point on certain CPUs, such as the 68040. This product has been made obsolete by the dramatically faster performance of AMOS 8.x systems.

LightningBASIC 1.0 is a first effort to unify the various AlphaBASIC versions. LRUN.LIT will execute both 1.3 and 1.4 .RUN files. Future versions of LRUN will execute YRUN and ZRUN files, and possibly AlphaBASIC Plus, too. The days of ".RUN file apartheid" will soon be behind us.

The Roadmap For LightningBASIC

The 1.0 release of LightningBASIC is targeted for applications employing random files. Additional functionality will be added according to the following tentative timetable:

LightningBASIC Features Implementation Plan

Release Features	Estimated Release Date
LBASIC 1.0 - Compatible with BASIC 1.3 & 1.4 - IO(x) for SSD access - Directly executes all standard statements except ISAM, ISAM Plus, and SCALE - Metropolis support	**Now**
LBASIC 1.1 - ISAM support - SCALE - LDBG Decompiler	**12/2005**
LBASIC 1.2 - AlphaBASIC Plus support - ISAM Plus support	**04/2006**

Free For AM-8000 Users, And For All New AMOS 8.x System Shipments

LightningBASIC 1.0 Tier 1 (LRUN.LIT) is available at no charge to AM-8000 users. For existing AM-8000 users, fill out the form attached to this Marketing Bulletin and fax it to Sales Order Administration to obtain your PIC code. New AM-8000 orders will include LightningBASIC, effective today.

Lightning BASIC will also be provided with all new Eagle 800 and 800LC shipments, effective today. Existing Eagle 800 and 800LC users will need to purchase PIC Codes. See the Reseller Supplement for pricing information.

You must be running AMOS 8.1 in order for LightningBASIC to work.

Please note that all new system shipments will include LightningBASIC as the default installed RUN.LIT. If you require a different version, be sure to change it upon receipt of your system. It is in the best interest of the AMOS community to transition to this superior performance version of AlphaBASIC as soon as possible.

Electrify Your Client Sites With Some Lightning

Everyone wants more speed. LightningBASIC is the easiest performance upgrade yet: You can dramatically improve the performance of your AlphaBASIC applications without requiring any change in hardware!