Nastran DDB for Advanced Acoustic Solver Interface (AASI)

CDH Advanced Acoustic Solver Interface (AASI) offers a number of advanced modules and enhanced simulation options than standard AMLS DDBs. The present release includes the following features:

- **CDH/AASI-PEM** is a new AMLS/FastFRS based interface to efficiently solve acoustic simulation containing porous elastic material (PEM) from MSC ACTRAN.
- **CDH/AASI-FastPPF** is a new highly efficient algorithm for computing Panel Participation Factors (PPF).

Key advantages of CDH/AASI

- Up to 10x times **reduced computation time** compared to MSC Nastran (FastPPF).
- Significantly **lower disk space resource** requirements.
- Performance benchmarks also show **improved stability** of AASI over the ACMS solver.

The execution flow of AASI compared with standard AMLS/FastFRS is illustrated in Figure 1.

NOTE: Use of AASI DDB require a CDH/AASI license additional to AMLS/FastFRS licenses.

Supported Nastran Versions

MSC: 2021.4, 2022.2

CDH/AASI is currently available for MSC 2021.4 and 2022.2. For other versions, please consult CDH support.

Supported AMLS/FastFRS Versions

AMLS 5.2.r179/FastFRS 2.2.r179

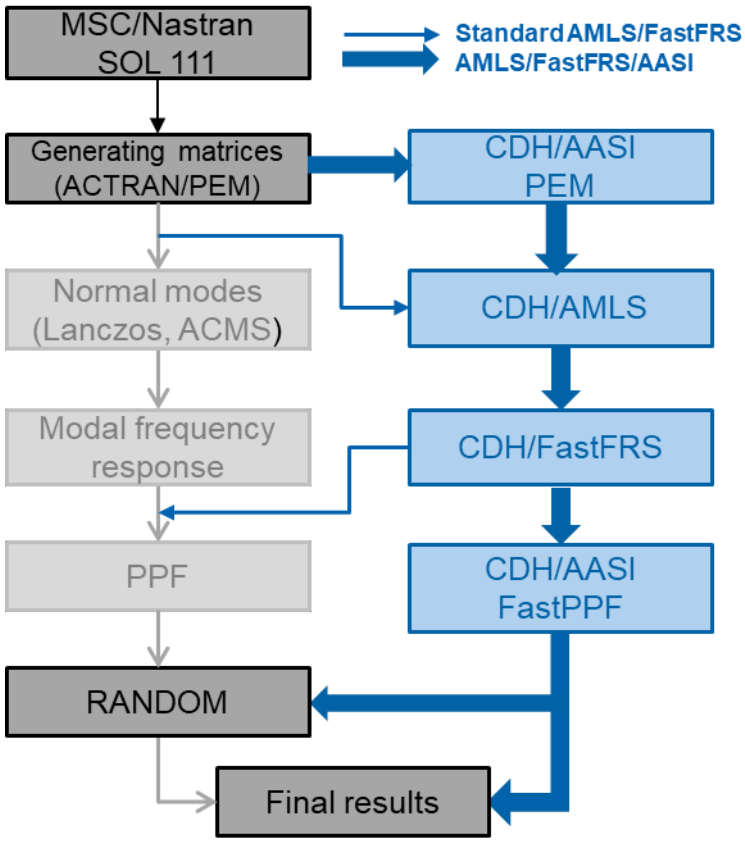

Figure 1 Execution flow of CDH/AASI

Who benefits from AASI

Significant computational performance improvements can be expected for Nastran based NVH frequency response analyses that include either porous elastic materials (PEM from Actran) and/or panel participation factor (PPF) output requests. The benefit will be most pronounced for models with a high number of modes as typically is the case for electric powered vehicle analysis.

Installation

The installation of AASI DDB follows the same procedure as standard AMLS DDB described in section 6 of ***AMLS Installation Guide***.

Usage

AASI is accessed directly by Nastran through the special Nastran delivery database in the same manner as standard AMLS/FastFRS Nastran run. An exception is that the Nastran run must use AASI DDB delivery by setting DEL=CDH_AASI_DDB. Here CDH_AASI_DDB is the full path of the actual location of AASI delivery database. For example

DEL=/opt/AMLS/AASI_del/CDH_AASI_20214

In addition, AASI uses AMLS and FastFRS by default and PARAM, AMLS and FFRS settings are not required.

Parallel option DMP and SMP

Note that AASI run should be submitted in SMP mode as AMLS/FastFRS support SMP only. To run Actran PEM in DMP/SMP mode, user must set Nastran parameters ACTDMP and ACTSMP.

Enhancement in version 2022.2 compared with 2022.1 Beta

- FastPPF supports cdh5 output (hdf5 format) for PPF results.
- Support modal participation calculations (PFMODE).

Known limitations

- AASI currently supports only single response frequency vector for all subcases.
- Support of FastPPF in combination with PEM is still under development.

In case of further questions please contact: support@cdh-ag.com