

**Low Cost Retention Mechanism****DESIGN OBJECTIVES**

The product described in this document has not been fully tested to ensure conformance to the requirements outlined below. Therefore AMP\* Incorporated makes no representation or warranty, express or implied, that the product will comply with these requirements. Further, AMP Incorporated may change these requirements based on the results of additional testing and evaluation. Contact AMP Engineering for further details.

**1. SCOPE**

## 1.1. Content

This specification covers performance, tests and quality requirements for the AMP\* low cost retention mechanism used to latch a processor to a printed circuit board. They are available with three types of attachment hardware: captive nuts and screws; separate plastic fasteners; and built-in plastic fasteners.

## 1.2. Qualification

When tests are performed on the subject product line, procedures specified in Figure 1 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

**2. APPLICABLE DOCUMENTS**

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the latest edition of the document applies. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

## 2.1. AMP Documents

- A. 109-1: General Requirements for Test Specifications
- B. 109 Series: Test Specifications as indicated in Figure 1
- C. Corporate Bulletin 401-76: Cross-reference between AMP Test Specifications and Government or Commercial Documents
- D. 114- : Application Specification
- E. 501- : Qualification Test Report

**3. REQUIREMENTS**

## 3.1. Design and Construction

Product shall be of the design, construction and physical dimensions specified on the applicable product drawing.

## 3.2. Materials

Materials used in the construction of this product shall be as specified on the applicable product drawing.

## 3.3. Ratings

Temperature: -40 to 70°C

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3.4. Performance and Test Description

Product is designed to meet the mechanical and environmental performance requirements specified in Figure 1. Unless otherwise specified, all tests shall be performed at ambient environmental conditions per AMP Specification 109-1.

3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Examination of product.	Meets requirements of product drawing and AMP Spec 114-_____.	Visual, dimensional and functional per applicable quality inspection plan.
<b>MECHANICAL</b>		
Vibration, random.	See Note.	AMP Spec 109-21-7. Subject samples to 3.13 G's rms between 5-500 Hz. 15 minutes in each of 3 mutually perpendicular planes. See Figure 3.
Mechanical shock.	See Note.	Subject mated samples to specified trapezoidal G's maximum. Velocity change of 160 inches per second at a duration of 10 milliseconds. 3 shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks. See Figures 3 and 4.
<b>ENVIRONMENTAL</b>		
Thermal shock.	See Note.	AMP Spec 109-22. Subject samples to 50 cycles between -40 and 70°C.
Humidity, steady state.	See Note.	AMP Spec 109-23-2, Condition A. Subject samples to steady state humidity at 40°C and 95% RH for 4 days.

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**NOTE** *Processor and/or heat sink shall not dislodge or unlatch from the retention mechanism. Samples shall also meet visual requirements, show no physical damage, and meet requirements of additional tests as specified in the Product Qualification and Requalification Test Sequence shown in Figure 2.*

Figure 1 (end)

3.6. Product Qualification and Requalification Test Sequence

Test or Examination	Test Group (a)
	1
Test Sequence (b)	
Examination of product	1,6
Vibration, random	5
Mechanical shock	4
Thermal shock	2
Humidity, steady state	3

**NOTE** (a) See Para 4.1.A.  
 (b) Numbers indicate sequence in which tests are performed.

Figure 2

**4. QUALITY ASSURANCE PROVISIONS**

4.1. Qualification Testing

A. Sample Selection

Samples shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. Test group shall consist of 8 sets of retention modules of each type.

B. Test Sequence

Qualification inspection shall be verified by testing samples as specified in Figure 2.

4.2. Requalification Testing

If changes significantly affecting form, fit or function are made to the product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of the original testing sequence as determined by development/product, quality and reliability engineering.

4.3. Acceptance

Acceptance is based on verification that the product meets the requirements of Figure 1. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify the product. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

4.4. Quality Conformance Inspection

The applicable AMP quality inspection plan shall specify the sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification.

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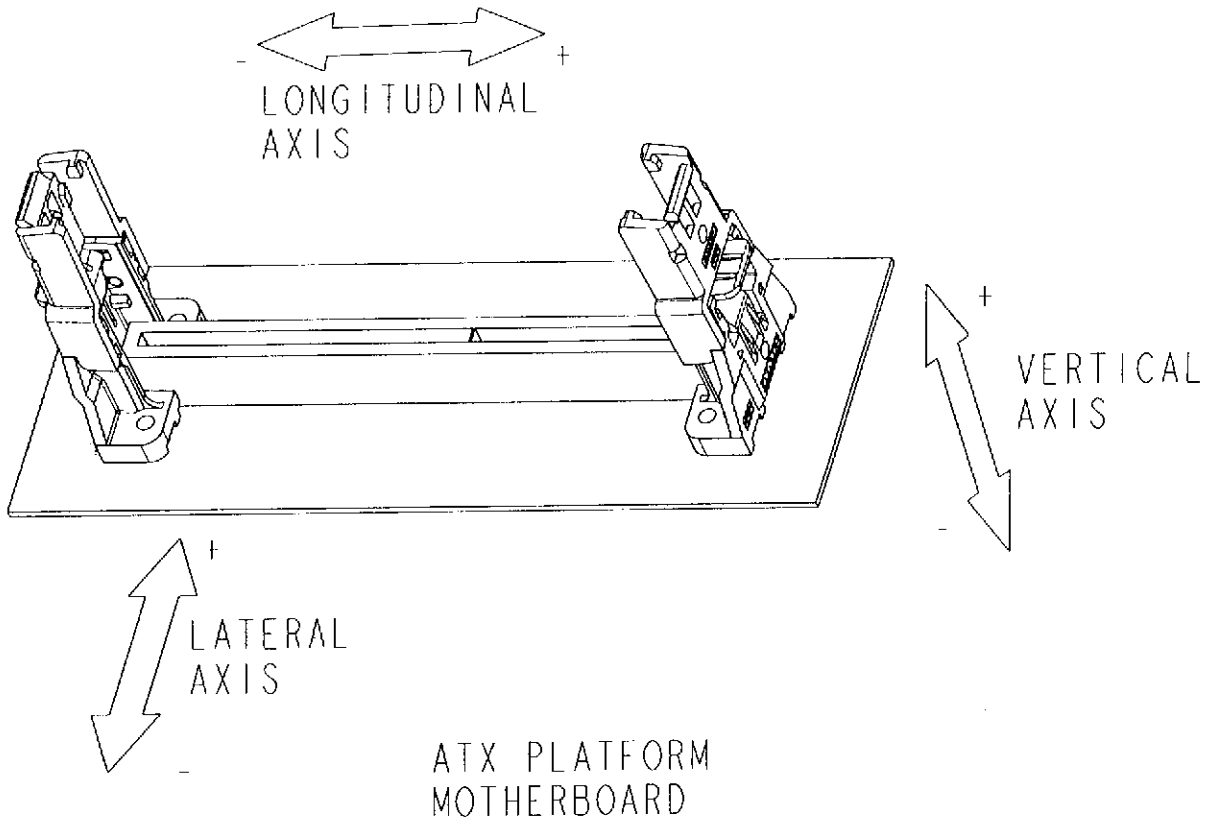


Figure 3  
Vibration & Mechanical Shock Mounting Fixture

Processor Type	Heat Sink Description	Shock Level					
		Axis					
		Lateral		Longitudinal		Vertical	
		Pos	Neg	Pos	Neg	Pos	Neg
Pentium II (Klamath)	340g total package	50G	50G	50G	50G	50G	50G
Celeron	120g heat sink	50G	50G	50G	50G	50G	50G
Celeron	180g heat sink simulator, .130 thick	50G	50G	50G	50G	50G	50G
Celeron	180g, .115 thick flange	50G	50G	50G	50G	30G	30G

Figure 4  
Mechanical Shock Requirements

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