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<?xml version="1.0" encoding="UTF-8" ?>
- <!--
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Schema templates for XML Mast Results File
(Version. 1.0)

(MAST Project)

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*****
-->
- <xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns:mast_res="http://www.MAST.org/Mast_1_0/result"
  targetNamespace="http://www.MAST.org/Mast_1_0/result" elementFormDefault="qualified"
  attributeFormDefault="unqualified">
  <!-- SIMPLE TYPES -->
- <xs:simpleType name="Percentage">
- <xs:restriction base="xs:float">
  <xs:minInclusive value="0.0" />
  <xs:maxInclusive value="100.0" />
</xs:restriction>
</xs:simpleType>
- <xs:simpleType name="Time">
- <xs:restriction base="xs:float">
  <xs:minInclusive value="0.0" />
</xs:restriction>
</xs:simpleType>
- <xs:simpleType name="Normalized_Execution_Time">
- <xs:restriction base="xs:float">
  <xs:minInclusive value="0.0" />
</xs:restriction>
</xs:simpleType>
- <xs:simpleType name="Priority">
- <xs:restriction base="xs:int">
  <xs:minInclusive value="0" />
</xs:restriction>
</xs:simpleType>
- <xs:simpleType name="Assertion">
- <xs:restriction base="xs:string">
  <xs:enumeration value="Yes" />
  <xs:enumeration value="No" />
</xs:restriction>
</xs:simpleType>
- <xs:simpleType name="Affirmative_Assertion">
- <xs:restriction base="mast_res:Assertion">
  <xs:enumeration value="Yes" />
</xs:restriction>
</xs:simpleType>
- <xs:simpleType name="Identifier">
- <xs:restriction base="xs:ID">
  <xs:pattern value="([a-z]|[A-Z])([a-z]|[A-Z]|[0-9]|.|_)*" />
</xs:restriction>
</xs:simpleType>
- <xs:simpleType name="External_Reference">
- <xs:restriction base="xs:NCName">
  <xs:pattern value="([a-z]|[A-Z])([a-z]|[A-Z]|[0-9]|.|_)*" />
</xs:restriction>
</xs:simpleType>
- <xs:simpleType name="Factor">
- <xs:restriction base="xs:float">
  <xs:minExclusive value="0" />
</xs:restriction>
</xs:simpleType>
- <xs:simpleType name="Date_Time">
  <xs:restriction base="xs:dateTime" />
</xs:simpleType>
  <!-- REAL_TIME_SITUATION RESULTS -->
- <xs:complexType name="Trace">
  <xs:attribute name="Pathname" type="xs:string" />
</xs:complexType>
  <!-- TRANSACTION RESULTS -->
- <xs:complexType name="Slack">
  <xs:attribute name="Value" type="mast_res:Percentage" />

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</xs:complexType>
- <xs:complexType name="Miss_Ratio">
  <xs:attribute name="Deadline" type="mast_res:Time" />
  <xs:attribute name="Ratio" type="mast_res:Percentage" />
</xs:complexType>
- <xs:complexType name="Miss_Ratio_List">
  - <xs:sequence>
    <xs:element name="Miss_Ratio" type="mast_res:Miss_Ratio" maxOccurs="unbounded" />
  </xs:sequence>
</xs:complexType>
- <xs:complexType name="Global_Miss_Ratio">
  - <xs:sequence>
    <xs:element name="Miss_Ratios" type="mast_res:Miss_Ratio_List" />
  </xs:sequence>
  <xs:attribute name="Referenced_Event" type="mast_res:External_Reference" />
</xs:complexType>
- <xs:complexType name="Global_Miss_Ratio_List">
  - <xs:sequence>
    <xs:element name="Global_Miss_Ratio" type="mast_res:Global_Miss_Ratio" maxOccurs="unbounded" />
  </xs:sequence>
</xs:complexType>
- <xs:complexType name="Global_Response_Time">
  <xs:attribute name="Referenced_Event" type="mast_res:External_Reference" />
  <xs:attribute name="Time_Value" type="mast_res:Time" />
</xs:complexType>
- <xs:complexType name="Global_Response_Time_List">
  - <xs:sequence>
    <xs:element name="Global_Response_Time" type="mast_res:Global_Response_Time"
      maxOccurs="unbounded" />
  </xs:sequence>
</xs:complexType>
- <xs:complexType name="Simulation_Timing_Result">
  - <xs:sequence>
    <xs:element name="Worst_Global_Response_Times" type="mast_res:Global_Response_Time_List"
      minOccurs="0" />
    <xs:element name="Avg_Global_Response_Times" type="mast_res:Global_Response_Time_List"
      minOccurs="0" />
    <xs:element name="Best_Global_Response_Times" type="mast_res:Global_Response_Time_List"
      minOccurs="0" />
    <xs:element name="Jitters" type="mast_res:Global_Response_Time_List" minOccurs="0" />
    <xs:element name="Local_Miss_Ratios" type="mast_res:Miss_Ratio_List" minOccurs="0" />
    <xs:element name="Global_Miss_Ratios" type="mast_res:Global_Miss_Ratio_List" minOccurs="0" />
  </xs:sequence>
  <xs:attribute name="Event_Name" type="mast_res:Identifier" use="required" />
  <xs:attribute name="Worst_Local_Response_Time" type="mast_res:Time" use="optional" />
  <xs:attribute name="Avg_Local_Response_Time" type="mast_res:Time" use="optional" />
  <xs:attribute name="Best_Local_Response_Time" type="mast_res:Time" use="optional" />
  <xs:attribute name="Worst_Blocking_Time" type="mast_res:Time" use="optional" />
  <xs:attribute name="Avg_Blocking_Time" type="mast_res:Time" use="optional" />
  <xs:attribute name="Max_Preemption_Time" type="mast_res:Time" use="optional" />
  <xs:attribute name="Suspension_Time" type="mast_res:Time" use="optional" />
  <xs:attribute name="Num_Of_Suspensions" type="xs:nonNegativeInteger" use="optional" />
  <xs:attribute name="Num_Of_Queued_Activations" type="xs:nonNegativeInteger" use="optional" />
</xs:complexType>
- <xs:complexType name="Timing_Result">
  - <xs:sequence>
    <xs:element name="Worst_Global_Response_Times" type="mast_res:Global_Response_Time_List"
      minOccurs="0" />
    <xs:element name="Best_Global_Response_Times" type="mast_res:Global_Response_Time_List"
      minOccurs="0" />
    <xs:element name="Jitters" type="mast_res:Global_Response_Time_List" minOccurs="0" />
  </xs:sequence>
  <xs:attribute name="Event_Name" type="mast_res:Identifier" use="required" />
  <xs:attribute name="Worst_Local_Response_Time" type="mast_res:Time" use="optional" />
  <xs:attribute name="Best_Local_Response_Time" type="mast_res:Time" use="optional" />
  <xs:attribute name="Worst_Blocking_Time" type="mast_res:Time" use="optional" />
  <xs:attribute name="Num_Of_Suspensions" type="xs:nonNegativeInteger" use="optional" />
</xs:complexType>
- <xs:complexType name="Transaction_Results">
  - <xs:sequence minOccurs="0" maxOccurs="unbounded">
    - <xs:choice>
      <xs:element name="Slack" type="mast_res:Slack" />
      <xs:element name="Timing_Result" type="mast_res:Timing_Result" />
      <xs:element name="Simulation_Timing_Result" type="mast_res:Simulation_Timing_Result" />
    </xs:choice>
  </xs:sequence>
  <xs:attribute name="Name" type="mast_res:Identifier" use="required" />
</xs:complexType>

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<!-- PROCESSING RESOURCE RESULTS -->
- <xs:complexType name="Ready_Queue_Size">
  <xs:attribute name="Max_Num" type="xs:nonNegativeInteger" use="optional" />
</xs:complexType>
- <xs:complexType name="Detailed_Utilization">
  <xs:attribute name="Total" type="mast_res:Percentage" use="optional" />
  <xs:attribute name="Application" type="mast_res:Percentage" use="optional" />
  <xs:attribute name="Context_Switch" type="mast_res:Percentage" use="optional" />
  <xs:attribute name="Timer" type="mast_res:Percentage" use="optional" />
  <xs:attribute name="Driver" type="mast_res:Percentage" use="optional" />
</xs:complexType>
- <xs:complexType name="Processing_Resource_Results">
  - <xs:sequence minOccurs="0" maxOccurs="unbounded">
    - <xs:choice>
      <xs:element name="Slack" type="mast_res:Slack" />
      <xs:element name="Detailed_Utilization" type="mast_res:Detailed_Utilization" />
      <xs:element name="Utilization" type="mast_res:Utilization" />
      <xs:element name="Ready_Queue_Size" type="mast_res:Ready_Queue_Size" minOccurs="0" />
    </xs:choice>
  </xs:sequence>
  <xs:attribute name="Name" type="mast_res:Identifier" use="required" />
</xs:complexType>
<!-- OPERATION RESULTS -->
- <xs:complexType name="Operation_Results">
  - <xs:sequence>
    <xs:element name="Slack" type="mast_res:Slack" />
  </xs:sequence>
  <xs:attribute name="Name" type="mast_res:Identifier" use="required" />
</xs:complexType>
<!-- SCHEDULING SERVER RESULTS -->
<!-- Scheduling Parameters -->
- <xs:complexType name="Non_Preemptible_FP_Policy">
  <xs:attribute name="The_Priority" type="mast_res:Priority" use="optional" />
  <xs:attribute name="Preassigned" type="mast_res:Assertion" use="optional" />
</xs:complexType>
- <xs:complexType name="Fixed_Priority_Policy">
  <xs:attribute name="The_Priority" type="mast_res:Priority" use="optional" />
  <xs:attribute name="Preassigned" type="mast_res:Assertion" use="optional" />
</xs:complexType>
- <xs:complexType name="Interrupt_FP_Policy">
  <xs:attribute name="The_Priority" type="mast_res:Priority" use="optional" />
  <xs:attribute name="Preassigned" type="mast_res:Affirmative_Assertion" use="optional" />
</xs:complexType>
- <xs:complexType name="Polling_Policy">
  <xs:attribute name="The_Priority" type="mast_res:Priority" use="optional" />
  <xs:attribute name="Preassigned" type="mast_res:Assertion" use="optional" />
  <xs:attribute name="Polling_Period" type="mast_res:Time" use="optional" />
  <xs:attribute name="Polling_Worst_Overhead" type="mast_res:Normalized_Execution_Time"
    use="optional" />
  <xs:attribute name="Polling_Avg_Overhead" type="mast_res:Normalized_Execution_Time"
    use="optional" />
  <xs:attribute name="Polling_Best_Overhead" type="mast_res:Normalized_Execution_Time"
    use="optional" />
</xs:complexType>
- <xs:complexType name="Sporadic_Server_Policy">
  <xs:attribute name="Normal_Priority" type="mast_res:Priority" use="optional" />
  <xs:attribute name="Preassigned" type="mast_res:Assertion" use="optional" />
  <xs:attribute name="Background_Priority" type="mast_res:Priority" use="optional" />
  <xs:attribute name="Initial_Capacity" type="mast_res:Time" use="optional" />
  <xs:attribute name="Replenishment_Period" type="mast_res:Time" use="optional" />
  <xs:attribute name="Max_Pending_Replenishments" type="xs:positiveInteger" use="optional" />
</xs:complexType>
- <xs:complexType name="Scheduling_Server_Results">
  - <xs:choice>
    <xs:element name="Non_Preemptible_FP_Policy" type="mast_res:Non_Preemptible_FP_Policy" />
    <xs:element name="Fixed_Priority_Policy" type="mast_res:Fixed_Priority_Policy" />
    <xs:element name="Interrupt_FP_Policy" type="mast_res:Interrupt_FP_Policy" />
    <xs:element name="Polling_Policy" type="mast_res:Polling_Policy" />
    <xs:element name="Sporadic_Server_Policy" type="mast_res:Sporadic_Server_Policy" />
  </xs:choice>
  <xs:attribute name="Name" type="mast_res:Identifier" use="required" />
</xs:complexType>
<!-- SHARED RESOURCE RESULTS -->
- <xs:complexType name="Priority_Ceiling">
  <xs:attribute name="Ceiling" type="mast_res:Priority" use="optional" />
</xs:complexType>
- <xs:complexType name="Queue_Size">
  <xs:attribute name="Max_Num" type="xs:nonNegativeInteger" use="optional" />

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</xs:complexType>
- <xs:complexType name="Utilization">
  <xs:attribute name="Total" type="mast_res:Percentage" use="optional" />
</xs:complexType>
- <xs:complexType name="Shared_Resource_Results">
  - <xs:all>
    <xs:element name="Priority_Ceiling" type="mast_res:Priority" minOccurs="0" />
    <xs:element name="Utilization" type="mast_res:Utilization" minOccurs="0" />
    <xs:element name="Queue_Size" type="mast_res:Queue_Size" minOccurs="0" />
  </xs:all>
  <xs:attribute name="Name" type="mast_res:Identifier" use="required" />
</xs:complexType>
<!-- REAL_TIME_SITUATION (root element) -->
- <xs:element name="REAL_TIME_SITUATION">
  - <xs:complexType>
    - <xs:sequence maxOccurs="unbounded">
      - <xs:choice>
        <!-- System_Slack -->
        <xs:element name="System_Slack" type="mast_res:Slack" />
        <!-- Trace -->
        <xs:element name="Trace" type="mast_res:Trace" />
        <!-- Transaction -->
        <xs:element name="Transaction" type="mast_res:Transaction_Results" />
        <!-- Processing_Resource -->
        <xs:element name="Processing_Resource" type="mast_res:Processing_Resource_Results" />
        <xs:element name="Operation" type="mast_res:Operation_Results" />
        <xs:element name="Scheduling_Server" type="mast_res:Scheduling_Server_Results" />
        <xs:element name="Shared_Resource" type="mast_res:Shared_Resource_Results" />
      </xs:choice>
    </xs:sequence>
    <xs:attribute name="Model_Name" type="mast_res:Identifier" use="required" />
    <xs:attribute name="Model_Date" type="mast_res:Date_Time" use="required" />
    <xs:attribute name="Generation_Tool" type="xs:string" use="required" />
    <xs:attribute name="Generation_Profile" type="xs:string" use="optional" />
    <xs:attribute name="Generation_Date" type="mast_res:Date_Time" use="required" />
    <!-- The blocks of results is not ordered by element type -->
  </xs:complexType>
</xs:element>
</xs:schema>

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