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<?xml version="1.0" encoding="UTF-8" ?>
<!-- edited with XMLSPY v2004 rel. 4 U (http://www.xmlspy.com) by Yago
Pereiro Estevan (Dep. Computadores y Tiempo Real, Group. CTR. University of Cant
- <!--

*****
Schema templates for XML Mast Model File
(Version MAST 1.3.7 )

(MAST Project)

By: Yago Pereiro Estevan (yago.pereiro@unican.es)
Patricia Lopez Martinez (lopezpa@unican.es)
Jose M. Drake Moyano (drakej@unican.es)

Grupo de Computadores y Tiempo Real (CTR)
Universidad de Cantabria

Santander, 14-Jun-04
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-->
- <xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns:mast_mdl="http://mast.unican.es/xmlmast/model"
  targetNamespace="http://mast.unican.es/xmlmast/model"
  elementFormDefault="qualified" attributeFormDefault="unqualified">
  <!-- SIMPLE TYPES -->
- <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="Any_Priority">
  <xs:restriction base="xs:nonNegativeInteger" />
</xs:simpleType>
- <xs:simpleType name="Priority">
  <xs:restriction base="mast_mdl:Any_Priority" />
</xs:simpleType>
- <xs:simpleType name="Interrupt_Priority">
  <xs:restriction base="mast_mdl:Any_Priority" />
</xs:simpleType>
- <xs:simpleType name="Preemption_Level">
  <xs:restriction base="xs:nonNegativeInteger" />
</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="Absolute_Time">
  - <xs:restriction base="xs:float">
    <xs:minInclusive value="0.0" />
  </xs:restriction>
</xs:simpleType>

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- <xs:simpleType name="Bit_Count">
  - <xs:restriction base="xs:float">
    <xs:minInclusive value="0.0" />
  </xs:restriction>
</xs:simpleType>
- <xs:simpleType name="Throughput">
  - <xs:restriction base="xs:float">
    <xs:minInclusive value="0.0" />
  </xs:restriction>
</xs:simpleType>
- <xs:simpleType name="Float">
  <xs:restriction base="xs:float" />
</xs:simpleType>
- <xs:simpleType name="Natural">
  <xs:restriction base="xs:nonNegativeInteger" />
</xs:simpleType>
- <xs:simpleType name="Positive">
  <xs:restriction base="xs:positiveInteger" />
</xs:simpleType>
- <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="Assertion">
  - <xs:restriction base="xs:string">
    <xs:enumeration value="Yes" />
    <xs:enumeration value="No" />
  </xs:restriction>
</xs:simpleType>
- <xs:simpleType name="Overhead_Type">
  - <xs:restriction base="xs:string">
    <xs:enumeration value="Coupled" />
    <xs:enumeration value="Decoupled" />
  </xs:restriction>
</xs:simpleType>
- <xs:simpleType name="Affirmative_Assertion">
  - <xs:restriction base="mast_mdl:Assertion">
    <xs:enumeration value="Yes" />
  </xs:restriction>
</xs:simpleType>
- <xs:simpleType name="Date_Time">
  <xs:restriction base="xs:dateTime" />
</xs:simpleType>
- <xs:simpleType name="Pathname">
  <xs:restriction base="xs:string" />
</xs:simpleType>
- <xs:simpleType name="Negative_Assertion">
  - <xs:restriction base="mast_mdl:Assertion">
    <xs:enumeration value="No" />
  </xs:restriction>
</xs:simpleType>
- <xs:simpleType name="Distribution_Type">
  - <xs:restriction base="xs:string">
    <xs:enumeration value="UNIFORM" />
  </xs:restriction>
</xs:simpleType>

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        <xs:enumeration value="POISSON" />
    </xs:restriction>
</xs:simpleType>
<!-- OPERATIONS -->
- <xs:complexType name="Overridden_Fixed_Priority">
    <xs:attribute name="The_Priority" type="mast_mdl:Priority"
        use="required" />
</xs:complexType>
- <xs:complexType name="Overridden_Permanent_FP">
    <xs:attribute name="The_Priority" type="mast_mdl:Priority"
        use="required" />
</xs:complexType>
- <xs:complexType name="Simple_Operation">
- <xs:sequence>
    <!-- Overridden Scheduling Parameters -->
    - <xs:choice minOccurs="0">
        <xs:element name="Overridden_Fixed_Priority"
            type="mast_mdl:Overridden_Fixed_Priority" />
        <xs:element name="Overridden_Permanent_FP"
            type="mast_mdl:Overridden_Permanent_FP" />
    </xs:choice>
    - <xs:choice>
        <xs:element name="Shared_Resources_List" type="xs:IDREFS"
            minOccurs="0" />
        - <xs:sequence>
            <xs:element name="Shared_Resources_To_Lock"
                type="xs:IDREFS" minOccurs="0" />
            <xs:element name="Shared_Resources_To_Unlock"
                type="xs:IDREFS" minOccurs="0" />
        </xs:sequence>
    </xs:choice>
</xs:sequence>
<xs:attribute name="Name" type="mast_mdl:Identifier" use="required" />
<xs:attribute name="Worst_Case_Execution_Time"
    type="mast_mdl:Normalized_Execution_Time" use="optional" />
<xs:attribute name="Average_Case_Execution_Time"
    type="mast_mdl:Normalized_Execution_Time" use="optional" />
<xs:attribute name="Best_Case_Execution_Time"
    type="mast_mdl:Normalized_Execution_Time" use="optional" />
</xs:complexType>
- <xs:complexType name="Message_Transmission">
- <xs:choice minOccurs="0">
    <xs:element name="Overridden_Fixed_Priority"
        type="mast_mdl:Overridden_Fixed_Priority" />
    <xs:element name="Overridden_Permanent_FP"
        type="mast_mdl:Overridden_Permanent_FP" />
</xs:choice>
<xs:attribute name="Name" type="mast_mdl:Identifier" use="required" />
<xs:attribute name="Max_Message_Size" type="mast_mdl:Bit_Count"
    use="optional" />
<xs:attribute name="Avg_Message_Size" type="mast_mdl:Bit_Count"
    use="optional" />
<xs:attribute name="Min_Message_Size" type="mast_mdl:Bit_Count"
    use="optional" />
    <!-- Overridden Scheduling Parameters -->
</xs:complexType>
- <xs:complexType name="Composite_Operation">

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- <xs:sequence>
  <!-- Overridden Scheduling Parameters -->
  - <xs:choice minOccurs="0">
    <xs:element name="Overridden_Fixed_Priority"
      type="mast_mdl:Overridden_Fixed_Priority" />
    <xs:element name="Overridden_Permanent_FP"
      type="mast_mdl:Overridden_Permanent_FP" />
  </xs:choice>
  <xs:element name="Operation_List" type="xs:IDREFS" />
</xs:sequence>
<xs:attribute name="Name" type="mast_mdl:Identifier" use="required" />
</xs:complexType>
- <xs:complexType name="Enclosing_Operation">
  - <xs:sequence>
    <!-- Overridden Scheduling Parameters -->
    - <xs:choice minOccurs="0">
      <xs:element name="Overridden_Fixed_Priority"
        type="mast_mdl:Overridden_Fixed_Priority" />
      <xs:element name="Overridden_Permanent_FP"
        type="mast_mdl:Overridden_Permanent_FP" />
    </xs:choice>
    <xs:element name="Operation_List" type="xs:IDREFS" />
  </xs:sequence>
  <xs:attribute name="Name" type="mast_mdl:Identifier" use="required" />
  <xs:attribute name="Worst_Case_Execution_Time"
    type="mast_mdl:Normalized_Execution_Time" use="optional" />
  <xs:attribute name="Average_Case_Execution_Time"
    type="mast_mdl:Normalized_Execution_Time" use="optional" />
  <xs:attribute name="Best_Case_Execution_Time"
    type="mast_mdl:Normalized_Execution_Time" use="optional" />
</xs:complexType>
<!-- SCHEDULING_SERVER -->
<!-- Synchronization Parameters -->
- <xs:complexType name="SRP_Parameters">
  <xs:attribute name="Preemption_Level"
    type="mast_mdl:Preemption_Level" use="required" />
  <xs:attribute name="Preassigned" type="mast_mdl:Assertion"
    use="optional" />
</xs:complexType>
<!-- Scheduling Parameters -->
- <xs:complexType name="Non_Preemptible_FP_Policy">
  <xs:attribute name="The_Priority" type="mast_mdl:Priority"
    use="optional" />
  <xs:attribute name="Preassigned" type="mast_mdl:Assertion"
    use="optional" />
</xs:complexType>
- <xs:complexType name="Fixed_Priority_Policy">
  <xs:attribute name="The_Priority" type="mast_mdl:Priority"
    use="optional" />
  <xs:attribute name="Preassigned" type="mast_mdl:Assertion"
    use="optional" />
</xs:complexType>
- <xs:complexType name="Interrupt_FP_Policy">
  <xs:attribute name="The_Priority" type="mast_mdl:Interrupt_Priority"
    use="optional" />
  <xs:attribute name="Preassigned" type="mast_mdl:Affirmative_Assertion"
    use="optional" />

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</xs:complexType>
- <xs:complexType name="Polling_Policy">
  <xs:attribute name="The_Priority" type="mast_mdl:Priority"
    use="optional" />
  <xs:attribute name="Preassigned" type="mast_mdl:Assertion"
    use="optional" />
  <xs:attribute name="Polling_Period" type="mast_mdl:Time"
    use="optional" />
  <xs:attribute name="Polling_Worst_Overhead"
    type="mast_mdl:Normalized_Execution_Time" use="optional" />
  <xs:attribute name="Polling_Avg_Overhead"
    type="mast_mdl:Normalized_Execution_Time" use="optional" />
  <xs:attribute name="Polling_Best_Overhead"
    type="mast_mdl:Normalized_Execution_Time" use="optional" />
</xs:complexType>
- <xs:complexType name="Sporadic_Server_Policy">
  <xs:attribute name="Normal_Priority" type="mast_mdl:Priority"
    use="optional" />
  <xs:attribute name="Preassigned" type="mast_mdl:Assertion"
    use="optional" />
  <xs:attribute name="Background_Priority" type="mast_mdl:Priority"
    use="optional" />
  <xs:attribute name="Initial_Capacity" type="mast_mdl:Time"
    use="optional" />
  <xs:attribute name="Replenishment_Period" type="mast_mdl:Time"
    use="optional" />
  <xs:attribute name="Max_Pending_Replenishments"
    type="mast_mdl:Positive" use="optional" />
</xs:complexType>
- <xs:complexType name="EDF_Policy">
  <xs:attribute name="Deadline" type="mast_mdl:Time" use="optional" />
  <xs:attribute name="Preassigned" type="mast_mdl:Assertion"
    use="optional" />
</xs:complexType>
- <xs:complexType name="Regular_Scheduling_Server">
  - <xs:sequence>
    - <xs:choice>
      <xs:element name="Non_Preemptible_FP_Policy"
        type="mast_mdl:Non_Preemptible_FP_Policy" />
      <xs:element name="Fixed_Priority_Policy"
        type="mast_mdl:Fixed_Priority_Policy" />
      <xs:element name="Interrupt_FP_Policy"
        type="mast_mdl:Interrupt_FP_Policy" />
      <xs:element name="Polling_Policy"
        type="mast_mdl:Polling_Policy" />
      <xs:element name="Sporadic_Server_Policy"
        type="mast_mdl:Sporadic_Server_Policy" />
      <xs:element name="EDF_Policy" type="mast_mdl:EDF_Policy" />
    </xs:choice>
    <!-- Synchronization Parameters -->
    - <xs:choice minOccurs="0">
      <xs:element name="SRP_Parameters"
        type="mast_mdl:SRP_Parameters" />
    </xs:choice>
  </xs:sequence>
  <xs:attribute name="Name" type="mast_mdl:Identifier" use="required" />
  <xs:attribute name="Scheduler" type="xs:IDREF" use="required" />

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    <!-- The original "Regular" name has changed to
    "Regular_Scheduling_Server" -->
    <!-- Server_Sched_Parameter -->
</xs:complexType>
<!-- SCHEDULER -->
- <xs:complexType name="Fixed_Priority_Scheduler">
  <xs:attribute name="Worst_Context_Switch"
    type="mast_mdl:Normalized_Execution_Time" use="optional" />
  <xs:attribute name="Avg_Context_Switch"
    type="mast_mdl:Normalized_Execution_Time" use="optional" />
  <xs:attribute name="Best_Context_Switch"
    type="mast_mdl:Normalized_Execution_Time" use="optional" />
  <xs:attribute name="Max_Priority" type="mast_mdl:Priority"
    use="optional" />
  <xs:attribute name="Min_Priority" type="mast_mdl:Priority"
    use="optional" />
  <!-- The original "Fixed_Priority" name has changed to
  "Fixed_Priority_Scheduler" -->
</xs:complexType>
- <xs:complexType name="EDF_Scheduler">
  <xs:attribute name="Worst_Context_Switch"
    type="mast_mdl:Normalized_Execution_Time" use="optional" />
  <xs:attribute name="Avg_Context_Switch"
    type="mast_mdl:Normalized_Execution_Time" use="optional" />
  <xs:attribute name="Best_Context_Switch"
    type="mast_mdl:Normalized_Execution_Time" use="optional" />
  <!-- The original "EDF" name has changed to "EDF_Scheduler" -->
</xs:complexType>
- <xs:complexType name="FP_Packet_Based_Scheduler">
  <xs:attribute name="Max_Priority" type="mast_mdl:Priority"
    use="optional" />
  <xs:attribute name="Min_Priority" type="mast_mdl:Priority"
    use="optional" />
  <xs:attribute name="Packet_Overhead_Max_Size"
    type="mast_mdl:Bit_Count" />
  <xs:attribute name="Packet_Overhead_Min_Size"
    type="mast_mdl:Bit_Count" />
  <xs:attribute name="Packet_Overhead_Avg_Size"
    type="mast_mdl:Bit_Count" />
  <!-- The original "FP_Packet_Based" name has changed to
  "FP_Packet_Based_Scheduler" -->
</xs:complexType>
- <xs:complexType name="Primary_Scheduler">
- <xs:choice minOccurs="0">
  <xs:element name="Fixed_Priority_Scheduler"
    type="mast_mdl:Fixed_Priority_Scheduler" />
  <xs:element name="EDF_Scheduler"
    type="mast_mdl:EDF_Scheduler" />
  <xs:element name="FP_Packet_Based_Scheduler"
    type="mast_mdl:FP_Packet_Based_Scheduler" />
</xs:choice>
  <xs:attribute name="Name" type="mast_mdl:Identifier" use="required" />
  <xs:attribute name="Host" type="xs:IDREF" use="required" />
</xs:complexType>
- <xs:complexType name="Secondary_Scheduler">
- <xs:choice minOccurs="0">
  <xs:element name="Fixed_Priority_Scheduler"

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type="mast_mdl:Fixed_Priority_Scheduler" />
  <xs:element name="EDF_Scheduler"
    type="mast_mdl:EDF_Scheduler" />
  <xs:element name="FP_Packet_Based_Scheduler"
    type="mast_mdl:FP_Packet_Based_Scheduler" />
</xs:choice>
<xs:attribute name="Name" type="mast_mdl:Identifier" use="required" />
<xs:attribute name="Host" type="xs:IDREF" use="required" />
</xs:complexType>
<!-- PROCESSING_RESOURCES types element -->
<!-- System Timers -->
- <xs:complexType name="Ticker_System_Timer">
  <xs:attribute name="Worst_Overhead"
    type="mast_mdl:Normalized_Execution_Time" use="optional" />
  <xs:attribute name="Avg_Overhead"
    type="mast_mdl:Normalized_Execution_Time" use="optional" />
  <xs:attribute name="Best_Overhead"
    type="mast_mdl:Normalized_Execution_Time" use="optional" />
  <xs:attribute name="Period" type="mast_mdl:Time" use="optional" />
  <!-- The original "Ticker" name has changed to "Ticker_System_Timer"
  -->
</xs:complexType>
- <xs:complexType name="Alarm_Clock_System_Timer">
  <xs:attribute name="Worst_Overhead"
    type="mast_mdl:Normalized_Execution_Time" use="optional" />
  <xs:attribute name="Avg_Overhead"
    type="mast_mdl:Normalized_Execution_Time" use="optional" />
  <xs:attribute name="Best_Overhead"
    type="mast_mdl:Normalized_Execution_Time" use="optional" />
  <!-- The original "Alarm_Clock" name has changed to
  "Alarm_Clock_System_Timer" -->
</xs:complexType>
<!-- Regular_Processor -->
- <xs:complexType name="Regular_Processor">
- <xs:choice minOccurs="0">
  <xs:element name="Ticker_System_Timer"
    type="mast_mdl:Ticker_System_Timer" />
  <xs:element name="Alarm_Clock_System_Timer"
    type="mast_mdl:Alarm_Clock_System_Timer" />
</xs:choice>
<xs:attribute name="Name" type="mast_mdl:Identifier" use="required" />
<xs:attribute name="Max_Interrupt_Priority"
  type="mast_mdl:Interrupt_Priority" use="optional" />
<xs:attribute name="Min_Interrupt_Priority"
  type="mast_mdl:Interrupt_Priority" use="optional" />
<xs:attribute name="Worst_ISR_Switch"
  type="mast_mdl:Normalized_Execution_Time" use="optional" />
<xs:attribute name="Avg_ISR_Switch"
  type="mast_mdl:Normalized_Execution_Time" use="optional" />
<xs:attribute name="Best_ISR_Switch"
  type="mast_mdl:Normalized_Execution_Time" use="optional" />
<xs:attribute name="Speed_Factor" type="mast_mdl:Float"
  use="optional" />
  <!-- System timer -->
</xs:complexType>
<!-- PACKET_BASED_NETWORK -->
<!-- Network Drivers -->

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- <xs:complexType name="Packet_Driver">
  <xs:attribute name="Packet_Send_Operation" type="xs:IDREF"
    use="optional" />
  <xs:attribute name="Packet_Receive_Operation" type="xs:IDREF"
    use="optional" />
  <xs:attribute name="Packet_Server" type="xs:IDREF" use="required" />
  <xs:attribute name="Message_Partitioning" type="mast_mdl:Assertion"
    use="optional" />
  <xs:attribute name="RTA_Overhead_Model"
    type="mast_mdl:Overhead_Type" use="optional" />
</xs:complexType>
- <xs:complexType name="Character_Packet_Driver">
  <xs:attribute name="Packet_Send_Operation" type="xs:IDREF"
    use="optional" />
  <xs:attribute name="Packet_Receive_Operation" type="xs:IDREF"
    use="optional" />
  <xs:attribute name="Character_Send_Operation" type="xs:IDREF"
    use="optional" />
  <xs:attribute name="Character_Receive_Operation" type="xs:IDREF"
    use="optional" />
  <xs:attribute name="Packet_Server" type="xs:IDREF" use="required" />
  <xs:attribute name="Character_Server" type="xs:IDREF" use="required" />
  <xs:attribute name="Character_Transmission_Time"
    type="mast_mdl:Time" use="optional" />
  <xs:attribute name="Message_Partitioning" type="mast_mdl:Assertion"
    use="optional" />
  <xs:attribute name="RTA_Overhead_Model"
    type="mast_mdl:Overhead_Type" use="optional" />
</xs:complexType>
- <xs:complexType name="RTEP_Packet_Driver">
  <xs:attribute name="Packet_Send_Operation" type="xs:IDREF"
    use="optional" />
  <xs:attribute name="Packet_Receive_Operation" type="xs:IDREF"
    use="optional" />
  <xs:attribute name="Packet_Server" type="xs:IDREF" use="required" />
  <xs:attribute name="Number_Of_Stations" type="mast_mdl:Positive"
    use="required" />
  <xs:attribute name="Token_Delay" type="mast_mdl:Time"
    use="optional" />
  <xs:attribute name="Failure_Timeout" type="mast_mdl:Time"
    use="optional" />
  <xs:attribute name="Token_Transmission_Retries"
    type="mast_mdl:Natural" use="optional" />
  <xs:attribute name="Packet_Transmission_Retries"
    type="mast_mdl:Natural" use="optional" />
  <xs:attribute name="Packet_Interrupt_Server" type="xs:IDREF"
    use="optional" />
  <xs:attribute name="Packet_ISR_Operation" type="xs:IDREF"
    use="optional" />
  <xs:attribute name="Token_Check_Operation" type="xs:IDREF"
    use="optional" />
  <xs:attribute name="Token_Manage_Operation" type="xs:IDREF"
    use="optional" />
  <xs:attribute name="Packet_Discard_Operation" type="xs:IDREF"
    use="optional" />
  <xs:attribute name="Token_Retransmission_Operation" type="xs:IDREF"
    use="optional" />

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<xs:attribute name="Packet_Retransmission_Operation" type="xs:IDREF"
  use="optional" />
<xs:attribute name="Message_Partitioning" type="mast_mdl:Assertion"
  use="optional" />
<xs:attribute name="RTA_Overhead_Model"
  type="mast_mdl:Overhead_Type" use="optional" />
</xs:complexType>
- <xs:complexType name="List_of_Drivers">
- <xs:sequence>
  <!-- Drivers -->
  - <xs:choice maxOccurs="unbounded">
    <xs:element name="Packet_Driver"
      type="mast_mdl:Packet_Driver" />
    <xs:element name="Character_Packet_Driver"
      type="mast_mdl:Character_Packet_Driver" />
    <xs:element name="RTEP_Packet_Driver"
      type="mast_mdl:RTEP_Packet_Driver" />
  </xs:choice>
</xs:sequence>
</xs:complexType>
- <xs:simpleType name="Transmission_Type">
- <xs:restriction base="xs:string">
  <xs:enumeration value="SIMPLEX" />
  <xs:enumeration value="HALF_DUPLEX" />
  <xs:enumeration value="FULL_DUPLEX" />
</xs:restriction>
</xs:simpleType>
<!-- Fixed_Priority_Network -->
- <xs:complexType name="Packet_Based_Network">
- <xs:sequence>
  <xs:element name="List_of_Drivers" type="mast_mdl:List_of_Drivers"
    minOccurs="0" />
</xs:sequence>
<xs:attribute name="Name" type="mast_mdl:Identifier" use="required" />
<xs:attribute name="Speed_Factor" type="mast_mdl:Float"
  use="optional" />
<xs:attribute name="Throughput" type="mast_mdl:Throughput"
  use="optional" />
<xs:attribute name="Transmission" type="mast_mdl:Transmission_Type"
  use="optional" />
<xs:attribute name="Max_Blocking"
  type="mast_mdl:Normalized_Execution_Time" use="optional" />
<xs:attribute name="Max_Packet_Size" type="mast_mdl:Bit_Count"
  use="optional" />
<xs:attribute name="Min_Packet_Size" type="mast_mdl:Bit_Count"
  use="optional" />
</xs:complexType>
<!-- SHARED_RESOURCE -->
- <xs:complexType name="Immediate_Ceiling_Resource">
  <xs:attribute name="Name" type="mast_mdl:Identifier" use="required" />
  <xs:attribute name="Ceiling" type="mast_mdl:Priority" use="optional" />
  <xs:attribute name="Preassigned" type="mast_mdl:Assertion"
    use="optional" />
</xs:complexType>
- <xs:complexType name="Priority_Inheritance_Resource">
  <xs:attribute name="Name" type="mast_mdl:Identifier" use="required" />
</xs:complexType>

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- <xs:complexType name="SRP_Resource">
  <xs:attribute name="Name" type="mast_mdl:Identifier" use="required" />
  <xs:attribute name="Preemption_Level"
    type="mast_mdl:Preemption_Level" use="optional" />
  <xs:attribute name="Preassigned" type="mast_mdl:Assertion"
    use="optional" />
</xs:complexType>
<!-- TRANSACTIONS -->
<!-- External_Event_Source -->
- <xs:complexType name="Periodic_External_Event">
  <xs:attribute name="Name" type="mast_mdl:Identifier" use="required" />
  <xs:attribute name="Period" type="mast_mdl:Time" use="optional" />
  <xs:attribute name="Max_Jitter" type="mast_mdl:Time" use="optional" />
  <xs:attribute name="Phase" type="mast_mdl:Absolute_Time"
    use="optional" />
  <!-- The original Periodic name has changed to
    Periodic_External_Event -->
</xs:complexType>
- <xs:complexType name="Sporadic_External_Event">
  <xs:attribute name="Name" type="mast_mdl:Identifier" use="required" />
  <xs:attribute name="Avg_Interarrival" type="mast_mdl:Time"
    use="optional" />
  <xs:attribute name="Distribution" type="mast_mdl:Distribution_Type"
    use="optional" />
  <xs:attribute name="Min_Interarrival" type="mast_mdl:Time"
    use="optional" />
  <!-- The original Sporadic name has changed to
    Sporadic_External_Event -->
</xs:complexType>
- <xs:complexType name="Unbounded_External_Event">
  <xs:attribute name="Name" type="mast_mdl:Identifier" use="required" />
  <xs:attribute name="Avg_Interarrival" type="mast_mdl:Time"
    use="optional" />
  <xs:attribute name="Distribution" type="mast_mdl:Distribution_Type"
    use="optional" />
  <!-- The original Unbounded name has changed to
    Unbounded_External_Event -->
</xs:complexType>
- <xs:complexType name="Bursty_External_Event">
  <xs:attribute name="Name" type="mast_mdl:Identifier" use="required" />
  <xs:attribute name="Avg_Interarrival" type="mast_mdl:Time"
    use="optional" />
  <xs:attribute name="Distribution" type="mast_mdl:Distribution_Type"
    use="optional" />
  <xs:attribute name="Bound_Interval" type="mast_mdl:Time"
    use="optional" />
  <xs:attribute name="Max_Arrivals" type="xs:positiveInteger"
    use="optional" />
  <!-- The original Bursty name has changed to Bursty_External_Event
    -->
</xs:complexType>
- <xs:complexType name="Singular_External_Event">
  <xs:attribute name="Name" type="mast_mdl:Identifier" use="required" />
  <xs:attribute name="Phase" type="mast_mdl:Absolute_Time"
    use="optional" />
  <!-- The original Singular name has changed to
    Singular_External_Event -->

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    <!-- Phase is optional, no required -->
  </xs:complexType>
  <!-- Timing_Requirements -->
- <xs:complexType name="Global_Max_Miss_Ratio">
  <xs:attribute name="Deadline" type="mast_mdl:Time" use="optional" />
  <xs:attribute name="Ratio" type="mast_mdl:Percentage" use="optional" />
  <xs:attribute name="Referenced_Event" type="xs:IDREF"
    use="required" />
</xs:complexType>
- <xs:complexType name="Soft_Global_Deadline">
  <xs:attribute name="Deadline" type="mast_mdl:Time" use="optional" />
  <xs:attribute name="Referenced_Event" type="xs:IDREF"
    use="required" />
</xs:complexType>
- <xs:complexType name="Hard_Global_Deadline">
  <xs:attribute name="Deadline" type="mast_mdl:Time" use="optional" />
  <xs:attribute name="Referenced_Event" type="xs:IDREF"
    use="required" />
</xs:complexType>
- <xs:complexType name="Local_Max_Miss_Ratio">
  <xs:attribute name="Deadline" type="mast_mdl:Time" use="optional" />
  <xs:attribute name="Ratio" type="mast_mdl:Percentage" use="optional" />
</xs:complexType>
- <xs:complexType name="Soft_Local_Deadline">
  <xs:attribute name="Deadline" type="mast_mdl:Time" use="optional" />
</xs:complexType>
- <xs:complexType name="Hard_Local_Deadline">
  <xs:attribute name="Deadline" type="mast_mdl:Time" use="optional" />
</xs:complexType>
- <xs:complexType name="Max_Output_Jitter_Req">
  <xs:attribute name="Max_Output_Jitter" type="mast_mdl:Time"
    use="optional" />
  <xs:attribute name="Referenced_Event" type="xs:IDREF"
    use="required" />
</xs:complexType>
- <xs:complexType name="Composite_Timing_Requirement">
  - <xs:sequence maxOccurs="unbounded">
    - <xs:choice>
      <xs:element name="Max_Output_Jitter_Req"
        type="mast_mdl:Max_Output_Jitter_Req" />
      <xs:element name="Hard_Global_Deadline"
        type="mast_mdl:Hard_Global_Deadline" />
      <xs:element name="Soft_Global_Deadline"
        type="mast_mdl:Soft_Global_Deadline" />
      <xs:element name="Global_Max_Miss_Ratio"
        type="mast_mdl:Global_Max_Miss_Ratio" />
      <xs:element name="Hard_Local_Deadline"
        type="mast_mdl:Hard_Local_Deadline" />
      <xs:element name="Soft_Local_Deadline"
        type="mast_mdl:Soft_Local_Deadline" />
      <xs:element name="Local_Max_Miss_Ratio"
        type="mast_mdl:Local_Max_Miss_Ratio" />
    </xs:choice>
  </xs:sequence>
</xs:complexType>
  <!-- Internal_Event -->
- <xs:complexType name="Regular_Event">

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- <xs:sequence minOccurs="0" maxOccurs="unbounded">
- <xs:choice maxOccurs="unbounded">
  <xs:element name="Max_Output_Jitter_Req"
    type="mast_mdl:Max_Output_Jitter_Req" />
  <xs:element name="Hard_Global_Deadline"
    type="mast_mdl:Hard_Global_Deadline" />
  <xs:element name="Soft_Global_Deadline"
    type="mast_mdl:Soft_Global_Deadline" />
  <xs:element name="Global_Max_Miss_Ratio"
    type="mast_mdl:Global_Max_Miss_Ratio" />
  <xs:element name="Hard_Local_Deadline"
    type="mast_mdl:Hard_Local_Deadline" />
  <xs:element name="Soft_Local_Deadline"
    type="mast_mdl:Soft_Local_Deadline" />
  <xs:element name="Local_Max_Miss_Ratio"
    type="mast_mdl:Local_Max_Miss_Ratio" />
  <xs:element name="Composite_Timing_Requirement"
    type="mast_mdl:Composite_Timing_Requirement" />
</xs:choice>
</xs:sequence>
<xs:attribute name="Event" type="mast_mdl:Identifier" use="required" />
<!-- The original Regular name has changed to Regular_Event -->
</xs:complexType>
<!-- Event_Handlers -->
- <xs:complexType name="Activity">
  <xs:attribute name="Input_Event" type="xs:IDREF" use="required" />
  <xs:attribute name="Output_Event" type="xs:IDREF" use="required" />
  <xs:attribute name="Activity_Operation" type="xs:IDREF"
    use="required" />
  <xs:attribute name="Activity_Server" type="xs:IDREF" use="required" />
</xs:complexType>
- <xs:complexType name="System_Timed_Activity">
  <xs:attribute name="Input_Event" type="xs:IDREF" use="required" />
  <xs:attribute name="Output_Event" type="xs:IDREF" use="required" />
  <xs:attribute name="Activity_Operation" type="xs:IDREF"
    use="required" />
  <xs:attribute name="Activity_Server" type="xs:IDREF" use="required" />
</xs:complexType>
- <xs:complexType name="Concentrator">
  <xs:attribute name="Output_Event" type="xs:IDREF" use="required" />
  <xs:attribute name="Input_Events_List" type="xs:IDREFS"
    use="required" />
</xs:complexType>
<!-- Barrier= Merge_Control -->
- <xs:complexType name="Barrier">
  <xs:attribute name="Output_Event" type="xs:IDREF" use="required" />
  <xs:attribute name="Input_Events_List" type="xs:IDREFS"
    use="required" />
</xs:complexType>
<!-- Delivery_Server= Branch_Control -->
- <xs:simpleType name="Delivery_Policy">
- <xs:restriction base="xs:string">
  <xs:enumeration value="SCAN" />
  <xs:enumeration value="RANDOM" />
</xs:restriction>
</xs:simpleType>
- <xs:complexType name="Delivery_Server">

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    <xs:attribute name="Input_Event" type="xs:IDREF" use="required" />
    <xs:attribute name="Output_Events_List" type="xs:IDREFS"
      use="required" />
    <xs:attribute name="Delivery_Policy" type="mast_mdl:Delivery_Policy" />
  </xs:complexType>
  <!-- Queue_Server -->
- <xs:simpleType name="Request_Policy">
- <xs:restriction base="xs:string">
  <xs:enumeration value="PRIORITY" />
  <xs:enumeration value="FIFO" />
  <xs:enumeration value="LIFO" />
  <xs:enumeration value="SCAN" />
</xs:restriction>
</xs:simpleType>
- <xs:complexType name="Query_Server">
  <xs:attribute name="Input_Event" type="xs:IDREF" use="required" />
  <xs:attribute name="Output_Events_List" type="xs:IDREFS"
    use="required" />
  <xs:attribute name="Request_Policy" type="mast_mdl:Request_Policy"
    use="optional" />
</xs:complexType>
  <!-- Multicast= Fork_Control -->
- <xs:complexType name="Multicast">
  <xs:attribute name="Input_Event" type="xs:IDREF" use="required" />
  <xs:attribute name="Output_Events_List" type="xs:IDREFS"
    use="required" />
</xs:complexType>
- <xs:complexType name="Rate_Divisor">
  <xs:attribute name="Rate_Factor" type="mast_mdl:Positive"
    use="required" />
  <xs:attribute name="Input_Event" type="xs:IDREF" use="required" />
  <xs:attribute name="Output_Event" type="xs:IDREF" use="required" />
</xs:complexType>
- <xs:complexType name="Delay">
  <xs:attribute name="Input_Event" type="xs:IDREF" use="required" />
  <xs:attribute name="Output_Event" type="xs:IDREF" use="required" />
  <xs:attribute name="Delay_Max_Interval" type="mast_mdl:Time"
    use="optional" />
  <xs:attribute name="Delay_Min_Interval" type="mast_mdl:Time"
    use="optional" />
</xs:complexType>
- <xs:complexType name="Offset">
  <xs:attribute name="Input_Event" type="xs:IDREF" use="required" />
  <xs:attribute name="Output_Event" type="xs:IDREF" use="required" />
  <xs:attribute name="Delay_Max_Interval" type="mast_mdl:Time"
    use="optional" />
  <xs:attribute name="Delay_Min_Interval" type="mast_mdl:Time"
    use="optional" />
  <xs:attribute name="Referenced_Event" type="xs:IDREF"
    use="required" />
</xs:complexType>
  <!-- Transaction -->
- <xs:complexType name="Regular_Transaction">
- <xs:sequence maxOccurs="unbounded">
  - <xs:choice>
    <!-- External events -->

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<xs:element name="Periodic_External_Event"
  type="mast_mdl:Periodic_External_Event" />
<xs:element name="Sporadic_External_Event"
  type="mast_mdl:Sporadic_External_Event" />
<xs:element name="Unbounded_External_Event"
  type="mast_mdl:Unbounded_External_Event" />
<xs:element name="Bursty_External_Event"
  type="mast_mdl:Bursty_External_Event" />
<xs:element name="Singular_External_Event"
  type="mast_mdl:Singular_External_Event" />
<!-- Internal events -->
<xs:element name="Regular_Event"
  type="mast_mdl:Regular_Event" />
<!-- Event handlers -->
<xs:element name="Activity" type="mast_mdl:Activity" />
<xs:element name="System_Timed_Activity"
  type="mast_mdl:System_Timed_Activity" />
<xs:element name="Concentrator"
  type="mast_mdl:Concentrator" />
<xs:element name="Barrier" type="mast_mdl:Barrier" />
<xs:element name="Delivery_Server"
  type="mast_mdl:Delivery_Server" />
<xs:element name="Query_Server"
  type="mast_mdl:Query_Server" />
<xs:element name="Multicast" type="mast_mdl:Multicast" />
<xs:element name="Rate_Divisor"
  type="mast_mdl:Rate_Divisor" />
<xs:element name="Delay" type="mast_mdl:Delay" />
<xs:element name="Offset" type="mast_mdl:Offset" />
</xs:choice>
</xs:sequence>
<xs:attribute name="Name" type="mast_mdl:Identifier" use="required" />
</xs:complexType>
<!-- Overall model types -->
- <xs:simpleType name="Priority_Inheritance_Protocol">
- <xs:restriction base="xs:string">
  <xs:enumeration value="STRICT" />
  <xs:enumeration value="POSIX" />
</xs:restriction>
</xs:simpleType>
<!-- MAST MODEL (root element) -->
- <xs:element name="MAST_MODEL">
- <xs:complexType>
  - <xs:sequence maxOccurs="unbounded">
    - <xs:choice>
      <!-- Processing Resources -->
      <xs:element name="Regular_Processor"
        type="mast_mdl:Regular_Processor" />
      <xs:element name="Packet_Based_Network"
        type="mast_mdl:Packet_Based_Network" />
      <!-- Scheduling Servers -->
      <xs:element name="Regular_Scheduling_Server"
        type="mast_mdl:Regular_Scheduling_Server" />
      <!-- Shared resources -->
      <xs:element name="Immediate_Ceiling_Resource"
        type="mast_mdl:Immediate_Ceiling_Resource" />
      <xs:element name="Priority_Inheritance_Resource"

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type="mast_md1:Priority_Inheritance_Resource" />
  <xs:element name="SRP_Resource"
    type="mast_md1:SRP_Resource" />
  <!-- Operations -->
  <xs:element name="Simple_Operation"
    type="mast_md1:Simple_Operation" />
  <xs:element name="Message_Transmission"
    type="mast_md1:Message_Transmission" />
  <xs:element name="Composite_Operation"
    type="mast_md1:Composite_Operation" />
  <xs:element name="Enclosing_Operation"
    type="mast_md1:Enclosing_Operation" />
  <!-- Transactions -->
  <xs:element name="Regular_Transaction"
    type="mast_md1:Regular_Transaction" />
  <!-- Schedulers -->
  <xs:element name="Primary_Scheduler"
    type="mast_md1:Primary_Scheduler" />
  <xs:element name="Secondary_Scheduler"
    type="mast_md1:Secondary_Scheduler" />
</xs:choice>
</xs:sequence>
<xs:attribute name="Model_Name" type="mast_md1:Identifier"
  use="required" />
<xs:attribute name="Model_Date" type="mast_md1:Date_Time"
  use="required" />
<xs:attribute name="System_PiP_Behaviour"
  type="mast_md1:Priority_Inheritance_Protocol" use="optional" />
</xs:complexType>
</xs:element>
</xs:schema>

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