

**ASSIGNMENT NO. 1**

**CADMIUM SIMULATION ON**

**ALARM CLOCK**

**MODEL**

**Course Title:**

**Methodologies for Discrete Event**

**Modelling and Simulation**

**Course Code: SYSC 5104**

**SUBMITTED TO:**

**Dr. Gabriel A. Wainer**

**Professor, Ph.D.**

**Systems and Computer Engineering**

**Carleton University, Ottawa, Canada**

**SUBMITTED BY:**

**Harshita Ghushe**

**Student ID: 101289614**

**DATE OF SUBMISSION:**

**26/02/2023**

**PART I - Description of the Selected Model:**

The model being described is an alarm clock system that can be decomposed into multiple sub-levels. At the top level, there are six input signals that represent push buttons and switch positions, and two outputs: DISPLAYED\_TIME, which represents the time displayed on the clock's four-digit display, and BUZZER, which represents the output of the buzzer speaker.

The state of the model can be represented by two state variables: D, which indicates whether the clock is displaying the time of day or the alarm time, and B, which indicates whether the buzzer is on or off. The top-level model can be broken down into two sub-levels.

The first sub-level includes three components: the TIME REGISTER, which holds and increments the time of day; the ALARM\_CONTROLLER, which holds the alarm time and determines whether the buzzer should be turned on or off; and the DISPLAY DRIVER, which determines whether the clock should display the time of day or the alarm time.

The second sub-level includes five components: the HOURS REGISTER and MINUTES REGISTER, which hold the hours and minutes that make up the time of day; the TIME\_COMPARATOR, which compares the time of day to the alarm time and detects when they match, potentially triggering the buzzer; the ALARM TIME REGISTER, which holds the alarm time; and the BUZZER DRIVER, which decides when the buzzer should be turned on or off.

Overall, this model allows users to set the time of day and the alarm time using push buttons and switch positions. The system automatically increments the time of day and checks whether the alarm time has been reached. If the alarm time is reached and the ALARM\_ON signal is set, the system triggers the buzzer. The SNOOZE button allows users to temporarily stop the buzzer for 10 minutes before it automatically starts again. The DISPLAYED\_TIME output displays either the time of day or the alarm time, depending on the state of the D variable.

**Top of Form**

Diagram

Description automatically generated

Figure 1: Block Diagram for Alarm Clock Model

**PART II - DEVS Specification for Atomic and Coupled Models:**

The Alarm Clock Coupled model takes 6 inputs (e\_time\_set, e\_alarm\_set,e\_hours, e\_minutes, e\_alarm\_on, and e\_snooze) and gives two outputs output (displayed\_time and buzzer\_on). The first, second, fifth and sixth inputs will be either 0(false) or 1(true). The third input will be hours value from 0 to 23 and the fourth input will be in minutes from 0 to 59.

**1. DEVS Formal Specification for Atomic Models:**

The DEVS formal specification of all the atomic models in the Assignment Submission Checker Model are given below:

DEVS Structure = <X, Y, S, δint, δext, λ, ta>

**1. TIME REGISTER Component:**

This block has three sub-modules namely, *Minutes Register, Hours Register, and Time Adder.*

**1.1 Minutes Register:**

Diagram

Description automatically generated

Figure 3: Atomic Model for Minutes Register

X = {time\_set, minutes }

Y = {wrap\_around, time\_minutes}

S = {active, passive}

δint (active) = passive

δext (time\_set or minutes, Passive) = Active

δext (time\_set or minutes, Active) = Active

λ (Active) {

Check the inputs *“*time\_set*” and “*minutes*”*

Every time this input is received, the minutes value is incremented by one if time is allowed to be set

Output value is time\_minutes which is equal to number of minutes stored in the register

Another output, wrap\_around indicates that the value of the register wrapped around. That is, it went from 59 to 0.

}

ta (Passive) = INFINITY

ta (Active) = TIME() //Time taken by *MinutesRegister* to generate *“time\_minutes”.*

**1.2 Hours Register:**

Diagram

Description automatically generated

Figure 3: Atomic Model for Hours Register

X = {time\_set, hours, wrap\_around }

Y = {time\_hours}

S = {active, passive}

δint (active) = passive

δext (time\_set or hours or wrap\_around, Passive) = Active

δext (time\_set or hours\_wrap\_around, Active) = Active

λ (Active) {

Check the inputs *“*time\_set*”, “wrap\_around and “*hours*”*

* + - If time\_set is active, the hour value is incremented by 1
    - wrap\_around increment the value of hour to 1 when the number of minutes wrap around from 59 to 60.
    - time\_hours stores the number of hours in the register.

ta (Passive) = INFINITY

ta (Active) = TIME() //Time taken by *HoursRegister* to generate *“time\_hours”.*

**1.3 Time Adder:**

Graphical user interface, application

Description automatically generated

Figure 3: Atomic Model for Time Adder

X = {time\_hours, time\_minutes }

Y = {time\_of\_day}

S = {active, passive}

δint (active) = passive

δext (time\_hours or time\_minutes, Passive) = Active

δext (time\_hours or time\_minutes, Active) = Active

λ (Active) {

Check the inputs *“*time\_hours*” and “*time\_minutes*”*

hours value is between 0 and 23 and minutes value is between 0 and 59 , then the output value(time\_of\_day) will be the time in minutes (hours\*100+minutes)

}

ta (Passive) = INFINITY

ta (Active) = TIME() //Time taken by *TimeAdder* to generate *“time\_of\_day”.*

**2. ALARMCONTROLLER Component**

**2.1 Time Comparator Component:**

Diagram

Description automatically generated

Figure 1: Atomic Model for Time Comparator

X = {alarm\_time, time\_of\_day }

Y = {time\_match}

S = {active, passive}

δint (active) = passive

δext (alarm\_time or time\_of\_day, Passive) = Active

δext (alarm\_time or time\_of\_day, Active) = Active

λ (Active) {

Check the inputs *“alarm\_time” and “time\_of\_day”*

If time\_of\_day = alarm\_time, return time\_match =alarm\_time, else 0

}

ta (Passive) = INFINITY

ta (Active) = TIME()

**2.2 Alarm Register Component:**

Diagram

Description automatically generated

Figure 1: Atomic Model for Alarm Register

X = {alarm\_set, hours, minutes }

Y = {alarm\_time}

S = {active, passive}

δint (active) = passive

δext (alarm\_set or hours or minutes, Passive) = Active

δext (alarm\_set or hours or minutes, Active) = Active

λ (Active) {

Check the inputs *“alarm\_set”,”hours” and “minutes”*

If time\_of\_day = alarm\_time, return time\_match =alarm\_time, else 0

}

ta (Passive) = INFINITY

ta (Active) = TIME()

**2.3 Buzzer Driver Component:**

Diagram

Description automatically generated

Figure 1: Atomic Model for Buzzer Driver

X = {alarm\_set, time\_set, time\_match, alarm\_on, snooze }

Y = {buzzer\_on}

S = {active, passive}

δint (active) = passive

δext (alarm\_set or time\_set or time\_match or alarm\_on or snooze, Passive) = Active

δext (alarm\_set or time\_set or time\_match or alarm\_on or snooze, Active) = Active

λ (Active) {

for(const auto &x : get\_messages<typename BuzDrv\_defs::time\_set>(mbs)){

state.timeSet = static\_cast < int >(x.value);

}

for(const auto &x : get\_messages<typename BuzDrv\_defs::alarm\_set>(mbs)){

state.alarmSet = static\_cast < int >(x.value);

}

for(const auto &x : get\_messages<typename BuzDrv\_defs::time\_match>(mbs)){

if(state.armed && (state.alarmSet==0) && (state.timeSet==0)){

state.alarmTime = static\_cast < int >(x.value);

state.timeRemaining = one\_hour;

state.buzzer = true;

state.snooz = false;

current\_state = active;

state.timeRemaining = TIME("00:00:00");

}

}

for(const auto &x : get\_messages<typename BuzDrv\_defs::snooze>(mbs)){

if(current\_state == active){

state.buzzer = false;

if(state.timeRemaining <= ten\_minutes)

{

state.snooz = false;

}

else

{

state.snooz = true;

state.timeRemaining = ten\_minutes;

}

current\_state = passive;

}

}

for(const auto &x : get\_messages<typename BuzDrv\_defs::alarm\_on>(mbs)){

if(static\_cast < int >(x.value)) {

state.armed = true;

state.buzzer = false;

current\_state = passive;

}

else {

state.armed = false;

state.buzzer = false;

state.snooz = false;

if(current\_state==active)

current\_state=passive;

else

current\_state=passive;

}

} }

Explanation –

The external method handles the external events coming from the input ports. Depending on the event received, the method sets the state variables and schedules an internal event to either turn on the buzzer, turn off the buzzer, snooze the buzzer, or wait for an external event.

ta (Passive) = INFINITY

ta (Active) = TIME()

**3. Display Driver Component:**

Diagram

Description automatically generated

Figure 6: Atomic Model for Display Driver

X = {alarm\_time, time\_of\_day, alarm\_set}

Y = {displayed\_time}

S = {Active, Passive}

δint (Active) = Passive

δext (alarm\_time or time\_of\_day or alarm\_set, Passive) = Active

δext (alarm\_time or time\_of\_day or alarm\_set, Active) = Active

λ (Active) {

* + - time\_of\_day provides the time of day.
    - alarm\_time provides the alarm time.
    - If alarm\_set is true, the alarm\_time is sent to the output,

else : time\_of\_day is displayed.

* + - displayed\_time provides either time of day or alarm time.

}

ta (Passive) = INFINITY

ta (Active) = TIME() //Time taken by *DisplayDriver* to generate *“displayed\_time”.*

**2. DEVS Formal Specification for Coupled Models:**

The DEVS formal specifications for all coupled models are given below.

DEVS Coupled Structure = <I, X, Y, D, {Mi}, {Ii}, {Zij}>

**1. TIMEREGISTER Component:**

I = {minutes, hours, time\_set, Time\_of\_day}

X = {minutes,time\_set, hours}

Y = {Time\_of\_day}

M1 = {HoursRegister}

M2 = {MinutesRegister}

M3 = {TimeAdder}

I1 = {Alarm Clock}

Zij =

minutes minutes@MinutesRegister

time\_set time\_set@ MinutesRegister

hours hours@HoursRegister

time\_set time\_set@ HoursRegister

time\_of\_day@TimeAdder Time\_of\_day

wrap\_around@MinutesRegister wrap\_around@HoursRegister

time\_minutes@MinutesRegister time\_minutes@TimeAdder

time\_hours@HoursRegister time\_hours@TimeAdder

**2. ALARMCONTROLLER Component:**

I = {alarm\_set, hours, minutes, snooze, alarm\_on, time\_of\_day, time\_set, buzzer\_on, alarm\_time}

X = {alarm\_set, hours, minutes, time\_of\_day, snooze, alarm\_on, time\_set}

Y = {Alarm\_time, buzzer\_on}

M1 = {AlarmRegister}

M2 = {TimeComparator}

M3 = {BuzzerDriver}

I1 = {Alarm Clock}

Zij =

alarm\_set alarm\_set@AlarmRegister

hours hours@AlarmRegister

minutes minutes@AlarmRegister

time\_of\_day time\_of\_day@TimeComparator

alarm\_on alarm\_on@BuzzerDriver

snooze snooze@ BuzzerDriver

time\_set time\_set@ BuzzerDriver

time\_match @TimeComparator time\_match@BuzzerDriver

alarm\_time @AlarmRegister alarm\_time@TimeComparator

alarm\_time@AlarmRegister Alarm\_time

buzzer\_on@BuzzerDriver buzzer\_on

**3. ALARMCLOCK Component:**

This is the highest level of the model.

I = {e\_minutes, e\_hours,e\_alarm\_set,e\_time\_set,e\_alarm\_on,e\_snooze,

displayed\_time, e\_buzzer\_on}

X = {e\_minutes, e\_hours,e\_alarm\_set,e\_time\_set,e\_alarm\_on,e\_snooze }

Y = {displayed\_time, e\_buzzer\_on}

M1 = {TIMEREGISTER}

M2 = {ALARMCONTROLLER}

M3 = {DisplayDriver}

Zij =

e\_alarm\_set alarm\_set@ALARMCONTROLLER

e\_hours hours@ALARMCONTROLLER

e\_hours hours@TIMEREGISTER

e\_minutes minutes@ALARMCONTROLLER

e\_minutes minutes@TIMEREGISTER

e\_time\_set time\_set@ ALARMCONTROLLER

e\_time\_set time\_set@ TIMEREGISTER

e\_alarm\_on alarm\_on @ ALARMCONTROLLER

e\_snooze snooze@ ALARMCONTROLLER

Time\_of\_day@TIMEREGISTER time\_of\_day@DisplayDriver

Time\_of\_day@TIMEREGISTER time\_of\_day@ALARMCONTROLLER

Alarm\_time@ALARMCONTROLLER alarm\_time@DisplayDriver

displayed\_time@DisplayDriver displayed\_time

buzzer\_on@ALARMCONTROLLER e\_buzzer\_on

**PART III - Test Case Execution and Simulation Results:**

**1. Test Strategy:**

1. The atomic and couple models will be tested using the Bottom\_up strategy**.** An input file (.txt) containing test cases will be given to every atomic and coupled model. Various test case scenarios are created inside these input test files. All of the input files are stored in the *“Alarm Clock/input\_data”* folder. Based on the input file given, different output files are generated and stored in the *“Alarm Clock/simulation\_results”*. First, the atomics models (Time Comparator, Time Adder, Display Driver, Hours Register, Minutes Register, Buzzer Drive, and Alarm Register) will be tested. Then, the coupled models will be tested (TIMEREGISTER, ALARMCONTROLLER, AND ALARMCLOCK). After running the tests, it was found that all the atomic and coupled models are working as expected.

For unit testing purposes, a separate input file is provided to every atomic model. After making sure that unit testing is successful and outputs comes out to be exactly same as expected, the models were integrated and tested as a single entity using only one input file named *“alarmclock\_input.txt”* which will give us two output files namely, *“ALARM\_CLOCK\_output\_messages.txt”* and *“ALARM\_CLOCK\_output\_states.txt”*.

**2. Test Cases Execution:**

**2.1 HoursRegister Atomic Model:**

**“*hourRegister\_test\_output\_messages*”**

00:00:00:000

00:00:00:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {}] generated by model input\_reader\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {}] generated by model input\_reader\_wrap\_around

00:00:10:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {12 0 0 0 0 0}] generated by model input\_reader\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {10 0 0 0 0 0}] generated by model input\_reader\_wrap\_around

00:00:20:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {3 0 0 0 0 0}] generated by model input\_reader\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {2 0 0 0 0 0}] generated by model input\_reader\_wrap\_around

00:00:30:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {4 0 0 0 0 0}] generated by model input\_reader\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {15 0 0 0 0 0}] generated by model input\_reader\_wrap\_around

00:00:40:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {5 0 0 0 0 0}] generated by model input\_reader\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {20 0 0 0 0 0}] generated by model input\_reader\_wrap\_around

00:00:50:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {20 0 0 0 0 0}] generated by model input\_reader\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {16 0 0 0 0 0}] generated by model input\_reader\_wrap\_around

00:01:50:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {13 0 0 0 0 0}] generated by model input\_reader\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {7 0 0 0 0 0}] generated by model input\_reader\_wrap\_around

00:02:00:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {19 0 0 0 0 0}] generated by model input\_reader\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {19 0 0 0 0 0}] generated by model input\_reader\_wrap\_around

00:02:10:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {16 0 0 0 0 0}] generated by model input\_reader\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {21 0 0 0 0 0}] generated by model input\_reader\_wrap\_around

00:02:20:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {14 0 0 0 0 0}] generated by model input\_reader\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {6 0 0 0 0 0}] generated by model input\_reader\_wrap\_around

00:02:30:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {10 0 0 0 0 0}] generated by model input\_reader\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {8 0 0 0 0 0}] generated by model input\_reader\_wrap\_around

***“hourRegister\_test\_output\_state”***

00:00:00:000

State for model input\_reader\_hours is next time: 00:00:00:000

State for model input\_reader\_time\_set is next time: 00:00:00:000

State for model input\_reader\_wrap\_around is next time: 00:00:00:000

State for model hourRegister1 is Hours Registered: 0

00:00:00:000

State for model input\_reader\_hours is next time: 00:00:10:000

State for model input\_reader\_time\_set is next time: 00:00:10:000

State for model input\_reader\_wrap\_around is next time: 00:00:10:000

State for model hourRegister1 is Hours Registered: 0

00:00:10:000

State for model input\_reader\_hours is next time: 00:00:10:000

State for model input\_reader\_time\_set is next time: 00:00:10:000

State for model input\_reader\_wrap\_around is next time: 00:00:10:000

State for model hourRegister1 is Hours Registered: 11

00:00:20:000

State for model input\_reader\_hours is next time: 00:00:10:000

State for model input\_reader\_time\_set is next time: 00:00:10:000

State for model input\_reader\_wrap\_around is next time: 00:00:10:000

State for model hourRegister1 is Hours Registered: 3

00:00:30:000

State for model input\_reader\_hours is next time: 00:00:10:000

State for model input\_reader\_time\_set is next time: 00:00:10:000

State for model input\_reader\_wrap\_around is next time: 00:00:10:000

State for model hourRegister1 is Hours Registered: 16

00:00:40:000

State for model input\_reader\_hours is next time: 00:00:10:000

State for model input\_reader\_time\_set is next time: 00:00:10:000

State for model input\_reader\_wrap\_around is next time: 00:00:10:000

State for model hourRegister1 is Hours Registered: 21

00:00:50:000

State for model input\_reader\_hours is next time: 00:01:00:000

State for model input\_reader\_time\_set is next time: 00:01:00:000

State for model input\_reader\_wrap\_around is next time: 00:01:00:000

State for model hourRegister1 is Hours Registered: 17

00:01:50:000

State for model input\_reader\_hours is next time: 00:00:10:000

State for model input\_reader\_time\_set is next time: 00:00:10:000

State for model input\_reader\_wrap\_around is next time: 00:00:10:000

State for model hourRegister1 is Hours Registered: 8

00:02:00:000

State for model input\_reader\_hours is next time: 00:00:10:000

State for model input\_reader\_time\_set is next time: 00:00:10:000

State for model input\_reader\_wrap\_around is next time: 00:00:10:000

State for model hourRegister1 is Hours Registered: 20

00:02:10:000

State for model input\_reader\_hours is next time: 00:00:10:000

State for model input\_reader\_time\_set is next time: 00:00:10:000

State for model input\_reader\_wrap\_around is next time: 00:00:10:000

State for model hourRegister1 is Hours Registered: 22

00:02:20:000

State for model input\_reader\_hours is next time: 00:00:10:000

State for model input\_reader\_time\_set is next time: 00:00:10:000

State for model input\_reader\_wrap\_around is next time: 00:00:10:000

State for model hourRegister1 is Hours Registered: 7

00:02:30:000

State for model input\_reader\_hours is next time: inf

State for model input\_reader\_time\_set is next time: inf

State for model input\_reader\_wrap\_around is next time: inf

State for model hourRegister1 is Hours Registered: 9

**2.2 MinutesRegister Atomic Model:**

**“*minRegister\_test\_output\_messages*”**

00:00:00:000

00:00:00:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {}] generated by model input\_reader\_minutes

00:00:10:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {15 0 0 0 0 0}] generated by model input\_reader\_minutes

00:00:20:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {13 0 0 0 0 0}] generated by model input\_reader\_minutes

00:00:30:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {14 0 0 0 0 0}] generated by model input\_reader\_minutes

00:00:40:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {2 0 0 0 0 0}] generated by model input\_reader\_minutes

00:00:50:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {7 0 0 0 0 0}] generated by model input\_reader\_minutes

00:01:50:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {9 0 0 0 0 0}] generated by model input\_reader\_minutes

00:02:00:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {10 0 0 0 0 0}] generated by model input\_reader\_minutes

00:02:10:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {12 0 0 0 0 0}] generated by model input\_reader\_minutes

00:02:20:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {30 0 0 0 0 0}] generated by model input\_reader\_minutes

00:02:30:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {8 0 0 0 0 0}] generated by model input\_reader\_minutes

**“*minRegister\_test\_output\_state*”**

**00:00:00:000**

State for model input\_reader\_time\_set is next time: 00:00:00:000

State for model input\_reader\_minutes is next time: 00:00:00:000

State for model minRegister1 is minute: 0 wrap: 0 active: 0

00:00:00:000

State for model input\_reader\_time\_set is next time: 00:00:10:000

State for model input\_reader\_minutes is next time: 00:00:10:000

State for model minRegister1 is minute: 0 wrap: 0 active: 0

00:00:10:000

State for model input\_reader\_time\_set is next time: 00:00:10:000

State for model input\_reader\_minutes is next time: 00:00:10:000

State for model minRegister1 is minute: 16 wrap: 0 active: 1

00:00:20:000

State for model input\_reader\_time\_set is next time: 00:00:10:000

State for model input\_reader\_minutes is next time: 00:00:10:000

State for model minRegister1 is minute: 14 wrap: 0 active: 1

00:00:30:000

State for model input\_reader\_time\_set is next time: 00:00:10:000

State for model input\_reader\_minutes is next time: 00:00:10:000

State for model minRegister1 is minute: 15 wrap: 0 active: 1

00:00:40:000

State for model input\_reader\_time\_set is next time: 00:00:10:000

State for model input\_reader\_minutes is next time: 00:00:10:000

State for model minRegister1 is minute: 3 wrap: 0 active: 1

00:00:50:000

State for model input\_reader\_time\_set is next time: 00:01:00:000

State for model input\_reader\_minutes is next time: 00:01:00:000

State for model minRegister1 is minute: 8 wrap: 0 active: 1

00:01:50:000

State for model input\_reader\_time\_set is next time: 00:00:10:000

State for model input\_reader\_minutes is next time: 00:00:10:000

State for model minRegister1 is minute: 10 wrap: 0 active: 1

00:02:00:000

State for model input\_reader\_time\_set is next time: 00:00:10:000

State for model input\_reader\_minutes is next time: 00:00:10:000

State for model minRegister1 is minute: 11 wrap: 0 active: 1

00:02:10:000

State for model input\_reader\_time\_set is next time: 00:00:10:000

State for model input\_reader\_minutes is next time: 00:00:10:000

State for model minRegister1 is minute: 13 wrap: 0 active: 1

00:02:20:000

State for model input\_reader\_time\_set is next time: 00:00:10:000

State for model input\_reader\_minutes is next time: 00:00:10:000

State for model minRegister1 is minute: 31 wrap: 0 active: 1

00:02:30:000

State for model input\_reader\_time\_set is next time: inf

State for model input\_reader\_minutes is next time: inf

State for model minRegister1 is minute: 9 wrap: 0 active: 1

**2.3 TimeAdder Atomic Model:**

**“*timeAdder\_test\_output\_messages*”**

00:00:00:000

00:00:00:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {}] generated by model input\_reader\_time\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {}] generated by model input\_reader\_time\_minutes

[TimeAdder\_defs::time\_of\_day: {0}] generated by model timeAdder1

00:00:10:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {15 0 0 0 0 0}] generated by model input\_reader\_time\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {20 0 0 0 0 0}] generated by model input\_reader\_time\_minutes

00:00:10:000

[TimeAdder\_defs::time\_of\_day: {1520}] generated by model timeAdder1

00:00:20:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {13 0 0 0 0 0}] generated by model input\_reader\_time\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {5 0 0 0 0 0}] generated by model input\_reader\_time\_minutes

00:00:20:000

[TimeAdder\_defs::time\_of\_day: {1305}] generated by model timeAdder1

00:00:30:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {14 0 0 0 0 0}] generated by model input\_reader\_time\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {9 0 0 0 0 0}] generated by model input\_reader\_time\_minutes

00:00:30:000

[TimeAdder\_defs::time\_of\_day: {1409}] generated by model timeAdder1

00:00:40:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {2 0 0 0 0 0}] generated by model input\_reader\_time\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {12 0 0 0 0 0}] generated by model input\_reader\_time\_minutes

00:00:40:000

[TimeAdder\_defs::time\_of\_day: {212}] generated by model timeAdder1

00:00:50:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {7 0 0 0 0 0}] generated by model input\_reader\_time\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {6 0 0 0 0 0}] generated by model input\_reader\_time\_minutes

00:00:50:000

[TimeAdder\_defs::time\_of\_day: {706}] generated by model timeAdder1

00:01:50:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {9 0 0 0 0 0}] generated by model input\_reader\_time\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {8 0 0 0 0 0}] generated by model input\_reader\_time\_minutes

00:01:50:000

[TimeAdder\_defs::time\_of\_day: {908}] generated by model timeAdder1

00:02:00:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {10 0 0 0 0 0}] generated by model input\_reader\_time\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {7 0 0 0 0 0}] generated by model input\_reader\_time\_minutes

00:02:00:000

[TimeAdder\_defs::time\_of\_day: {1007}] generated by model timeAdder1

00:02:10:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {12 0 0 0 0 0}] generated by model input\_reader\_time\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {16 0 0 0 0 0}] generated by model input\_reader\_time\_minutes

00:02:10:000

[TimeAdder\_defs::time\_of\_day: {1216}] generated by model timeAdder1

00:02:20:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {30 0 0 0 0 0}] generated by model input\_reader\_time\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {3 0 0 0 0 0}] generated by model input\_reader\_time\_minutes

00:02:20:000

[TimeAdder\_defs::time\_of\_day: {3003}] generated by model timeAdder1

00:02:30:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {8 0 0 0 0 0}] generated by model input\_reader\_time\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {21 0 0 0 0 0}] generated by model input\_reader\_time\_minutes

00:02:30:000

[TimeAdder\_defs::time\_of\_day: {821}] generated by model timeAdder1

**“*timeAdder\_test\_output\_state*”**

00:00:00:000

State for model input\_reader\_time\_hours is next time: 00:00:00:000

State for model input\_reader\_time\_minutes is next time: 00:00:00:000

State for model timeAdder1 is outTime: 0Phase:

00:00:00:000

State for model input\_reader\_time\_hours is next time: 00:00:10:000

State for model input\_reader\_time\_minutes is next time: 00:00:10:000

State for model timeAdder1 is outTime: 0Phase: passive

00:00:10:000

State for model input\_reader\_time\_hours is next time: 00:00:10:000

State for model input\_reader\_time\_minutes is next time: 00:00:10:000

State for model timeAdder1 is outTime: 1520Phase: active

00:00:10:000

State for model input\_reader\_time\_hours is next time: 00:00:10:000

State for model input\_reader\_time\_minutes is next time: 00:00:10:000

State for model timeAdder1 is outTime: 0Phase: passive

00:00:20:000

State for model input\_reader\_time\_hours is next time: 00:00:10:000

State for model input\_reader\_time\_minutes is next time: 00:00:10:000

State for model timeAdder1 is outTime: 1305Phase: active

00:00:20:000

State for model input\_reader\_time\_hours is next time: 00:00:10:000

State for model input\_reader\_time\_minutes is next time: 00:00:10:000

State for model timeAdder1 is outTime: 0Phase: passive

00:00:30:000

State for model input\_reader\_time\_hours is next time: 00:00:10:000

State for model input\_reader\_time\_minutes is next time: 00:00:10:000

State for model timeAdder1 is outTime: 1409Phase: active

00:00:30:000

State for model input\_reader\_time\_hours is next time: 00:00:10:000

State for model input\_reader\_time\_minutes is next time: 00:00:10:000

State for model timeAdder1 is outTime: 0Phase: passive

00:00:40:000

State for model input\_reader\_time\_hours is next time: 00:00:10:000

State for model input\_reader\_time\_minutes is next time: 00:00:10:000

State for model timeAdder1 is outTime: 212Phase: active

00:00:40:000

State for model input\_reader\_time\_hours is next time: 00:00:10:000

State for model input\_reader\_time\_minutes is next time: 00:00:10:000

State for model timeAdder1 is outTime: 0Phase: passive

00:00:50:000

State for model input\_reader\_time\_hours is next time: 00:01:00:000

State for model input\_reader\_time\_minutes is next time: 00:01:00:000

State for model timeAdder1 is outTime: 706Phase: active

00:00:50:000

State for model input\_reader\_time\_hours is next time: 00:01:00:000

State for model input\_reader\_time\_minutes is next time: 00:01:00:000

State for model timeAdder1 is outTime: 0Phase: passive

00:01:50:000

State for model input\_reader\_time\_hours is next time: 00:00:10:000

State for model input\_reader\_time\_minutes is next time: 00:00:10:000

State for model timeAdder1 is outTime: 908Phase: active

00:01:50:000

State for model input\_reader\_time\_hours is next time: 00:00:10:000

State for model input\_reader\_time\_minutes is next time: 00:00:10:000

State for model timeAdder1 is outTime: 0Phase: passive

00:02:00:000

State for model input\_reader\_time\_hours is next time: 00:00:10:000

State for model input\_reader\_time\_minutes is next time: 00:00:10:000

State for model timeAdder1 is outTime: 1007Phase: active

00:02:00:000

State for model input\_reader\_time\_hours is next time: 00:00:10:000

State for model input\_reader\_time\_minutes is next time: 00:00:10:000

State for model timeAdder1 is outTime: 0Phase: passive

00:02:10:000

State for model input\_reader\_time\_hours is next time: 00:00:10:000

State for model input\_reader\_time\_minutes is next time: 00:00:10:000

State for model timeAdder1 is outTime: 1216Phase: active

00:02:10:000

State for model input\_reader\_time\_hours is next time: 00:00:10:000

State for model input\_reader\_time\_minutes is next time: 00:00:10:000

State for model timeAdder1 is outTime: 0Phase: passive

00:02:20:000

State for model input\_reader\_time\_hours is next time: 00:00:10:000

State for model input\_reader\_time\_minutes is next time: 00:00:10:000

State for model timeAdder1 is outTime: 3003Phase: active

00:02:20:000

State for model input\_reader\_time\_hours is next time: 00:00:10:000

State for model input\_reader\_time\_minutes is next time: 00:00:10:000

State for model timeAdder1 is outTime: 0Phase: passive

00:02:30:000

State for model input\_reader\_time\_hours is next time: inf

State for model input\_reader\_time\_minutes is next time: inf

State for model timeAdder1 is outTime: 821Phase: active

00:02:30:000

State for model input\_reader\_time\_hours is next time: inf

State for model input\_reader\_time\_minutes is next time: inf

State for model timeAdder1 is outTime: 0Phase: passive

**2.4 AlarmRegister Atomic Model:**

**“*alarm\_test\_output\_messages*”**

00:00:00:000

00:00:00:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {}] generated by model input\_reader\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {}] generated by model input\_reader\_minutes

00:00:10:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {12 0 0 0 0 0}] generated by model input\_reader\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {15 0 0 0 0 0}] generated by model input\_reader\_minutes

00:00:20:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {3 0 0 0 0 0}] generated by model input\_reader\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {13 0 0 0 0 0}] generated by model input\_reader\_minutes

00:00:30:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {4 0 0 0 0 0}] generated by model input\_reader\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {14 0 0 0 0 0}] generated by model input\_reader\_minutes

00:00:40:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {5 0 0 0 0 0}] generated by model input\_reader\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {2 0 0 0 0 0}] generated by model input\_reader\_minutes

00:00:50:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {20 0 0 0 0 0}] generated by model input\_reader\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {7 0 0 0 0 0}] generated by model input\_reader\_minutes

00:01:50:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {13 0 0 0 0 0}] generated by model input\_reader\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {9 0 0 0 0 0}] generated by model input\_reader\_minutes

00:02:00:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {19 0 0 0 0 0}] generated by model input\_reader\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {10 0 0 0 0 0}] generated by model input\_reader\_minutes

00:02:10:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {16 0 0 0 0 0}] generated by model input\_reader\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {12 0 0 0 0 0}] generated by model input\_reader\_minutes

00:02:20:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {14 0 0 0 0 0}] generated by model input\_reader\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {30 0 0 0 0 0}] generated by model input\_reader\_minutes

00:02:30:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {10 0 0 0 0 0}] generated by model input\_reader\_hours

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {8 0 0 0 0 0}] generated by model input\_reader\_minutes

**“*alarm\_test\_output\_state*”**

00:00:00:000

State for model input\_reader\_alarm\_set is next time: 00:00:00:000

State for model input\_reader\_hours is next time: 00:00:00:000

State for model input\_reader\_minutes is next time: 00:00:00:000

State for model alarmRegister1 is Alarm Time: 0

00:00:00:000

State for model input\_reader\_alarm\_set is next time: 00:00:10:000

State for model input\_reader\_hours is next time: 00:00:10:000

State for model input\_reader\_minutes is next time: 00:00:10:000

State for model alarmRegister1 is Alarm Time: 0

00:00:10:000

State for model input\_reader\_alarm\_set is next time: 00:00:10:000

State for model input\_reader\_hours is next time: 00:00:10:000

State for model input\_reader\_minutes is next time: 00:00:10:000

State for model alarmRegister1 is Alarm Time: 1316

00:00:20:000

State for model input\_reader\_alarm\_set is next time: 00:00:10:000

State for model input\_reader\_hours is next time: 00:00:10:000

State for model input\_reader\_minutes is next time: 00:00:10:000

State for model alarmRegister1 is Alarm Time: 414

00:00:30:000

State for model input\_reader\_alarm\_set is next time: 00:00:10:000

State for model input\_reader\_hours is next time: 00:00:10:000

State for model input\_reader\_minutes is next time: 00:00:10:000

State for model alarmRegister1 is Alarm Time: 515

00:00:40:000

State for model input\_reader\_alarm\_set is next time: 00:00:10:000

State for model input\_reader\_hours is next time: 00:00:10:000

State for model input\_reader\_minutes is next time: 00:00:10:000

State for model alarmRegister1 is Alarm Time: 603

00:00:50:000

State for model input\_reader\_alarm\_set is next time: 00:01:00:000

State for model input\_reader\_hours is next time: 00:01:00:000

State for model input\_reader\_minutes is next time: 00:01:00:000

State for model alarmRegister1 is Alarm Time: 2108

00:01:50:000

State for model input\_reader\_alarm\_set is next time: 00:00:10:000

State for model input\_reader\_hours is next time: 00:00:10:000

State for model input\_reader\_minutes is next time: 00:00:10:000

State for model alarmRegister1 is Alarm Time: 1410

00:02:00:000

State for model input\_reader\_alarm\_set is next time: 00:00:10:000

State for model input\_reader\_hours is next time: 00:00:10:000

State for model input\_reader\_minutes is next time: 00:00:10:000

State for model alarmRegister1 is Alarm Time: 2011

00:02:10:000

State for model input\_reader\_alarm\_set is next time: 00:00:10:000

State for model input\_reader\_hours is next time: 00:00:10:000

State for model input\_reader\_minutes is next time: 00:00:10:000

State for model alarmRegister1 is Alarm Time: 1713

00:02:20:000

State for model input\_reader\_alarm\_set is next time: 00:00:10:000

State for model input\_reader\_hours is next time: 00:00:10:000

State for model input\_reader\_minutes is next time: 00:00:10:000

State for model alarmRegister1 is Alarm Time: 1531

00:02:30:000

State for model input\_reader\_alarm\_set is next time: inf

State for model input\_reader\_hours is next time: inf

State for model input\_reader\_minutes is next time: inf

State for model alarmRegister1 is Alarm Time: 1109

**2.5 TimeComparator Atomic Model:**

**“*timeComparator\_test\_output\_messages*”**

00:00:00:000

00:00:00:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {}] generated by model input\_reader\_alarm\_time

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {}] generated by model input\_reader\_time\_of\_day

[TimeComp\_defs::time\_match: {0}] generated by model timeComparator1

00:00:10:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1634 0 0 0 0 0}] generated by model input\_reader\_alarm\_time

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {1634}] generated by model input\_reader\_time\_of\_day

00:00:10:000

[TimeComp\_defs::time\_match: {1634}] generated by model timeComparator1

00:00:20:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1013 0 0 0 0 0}] generated by model input\_reader\_alarm\_time

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {1013}] generated by model input\_reader\_time\_of\_day

00:00:20:000

[TimeComp\_defs::time\_match: {1013}] generated by model timeComparator1

00:00:30:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {934 0 0 0 0 0}] generated by model input\_reader\_alarm\_time

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {920}] generated by model input\_reader\_time\_of\_day

00:00:40:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {123 0 0 0 0 0}] generated by model input\_reader\_alarm\_time

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {1240}] generated by model input\_reader\_time\_of\_day

00:00:50:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {645 0 0 0 0 0}] generated by model input\_reader\_alarm\_time

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {630}] generated by model input\_reader\_time\_of\_day

00:01:50:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {856 0 0 0 0 0}] generated by model input\_reader\_alarm\_time

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {850}] generated by model input\_reader\_time\_of\_day

00:02:00:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {72 0 0 0 0 0}] generated by model input\_reader\_alarm\_time

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {730}] generated by model input\_reader\_time\_of\_day

00:02:10:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {163 0 0 0 0 0}] generated by model input\_reader\_alarm\_time

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {1623}] generated by model input\_reader\_time\_of\_day

00:02:20:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {33 0 0 0 0 0}] generated by model input\_reader\_alarm\_time

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {330}] generated by model input\_reader\_time\_of\_day

00:02:30:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {214 0 0 0 0 0}] generated by model input\_reader\_alarm\_time

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {214}] generated by model input\_reader\_time\_of\_day

00:02:30:000

[TimeComp\_defs::time\_match: {214}] generated by model timeComparator1

**“*timeComparator\_test\_output\_state*”**

00:00:00:000

State for model input\_reader\_alarm\_time is next time: 00:00:00:000

State for model input\_reader\_time\_of\_day is next time: 00:00:00:000

State for model timeComparator1 is Alarm Time: 0Time of Day: 0Output value1: 0Phase:

00:00:00:000

State for model input\_reader\_alarm\_time is next time: 00:00:10:000

State for model input\_reader\_time\_of\_day is next time: 00:00:10:000

State for model timeComparator1 is Alarm Time: 0Time of Day: 0Output value1: 0Phase: passive

00:00:10:000

State for model input\_reader\_alarm\_time is next time: 00:00:10:000

State for model input\_reader\_time\_of\_day is next time: 00:00:10:000

State for model timeComparator1 is Alarm Time: 1634Time of Day: 1634Output value1: 1634Phase: active

00:00:10:000

State for model input\_reader\_alarm\_time is next time: 00:00:10:000

State for model input\_reader\_time\_of\_day is next time: 00:00:10:000

State for model timeComparator1 is Alarm Time: 1634Time of Day: 1634Output value1: 1634Phase: passive

00:00:20:000

State for model input\_reader\_alarm\_time is next time: 00:00:10:000

State for model input\_reader\_time\_of\_day is next time: 00:00:10:000

State for model timeComparator1 is Alarm Time: 1013Time of Day: 1013Output value1: 1013Phase: active

00:00:20:000

State for model input\_reader\_alarm\_time is next time: 00:00:10:000

State for model input\_reader\_time\_of\_day is next time: 00:00:10:000

State for model timeComparator1 is Alarm Time: 1013Time of Day: 1013Output value1: 1013Phase: passive

00:00:30:000

State for model input\_reader\_alarm\_time is next time: 00:00:10:000

State for model input\_reader\_time\_of\_day is next time: 00:00:10:000

State for model timeComparator1 is Alarm Time: 934Time of Day: 920Output value1: 0Phase: passive

00:00:40:000

State for model input\_reader\_alarm\_time is next time: 00:00:10:000

State for model input\_reader\_time\_of\_day is next time: 00:00:10:000

State for model timeComparator1 is Alarm Time: 123Time of Day: 1240Output value1: 0Phase: passive

00:00:50:000

State for model input\_reader\_alarm\_time is next time: 00:01:00:000

State for model input\_reader\_time\_of\_day is next time: 00:01:00:000

State for model timeComparator1 is Alarm Time: 645Time of Day: 630Output value1: 0Phase: passive

00:01:50:000

State for model input\_reader\_alarm\_time is next time: 00:00:10:000

State for model input\_reader\_time\_of\_day is next time: 00:00:10:000

State for model timeComparator1 is Alarm Time: 856Time of Day: 850Output value1: 0Phase: passive

00:02:00:000

State for model input\_reader\_alarm\_time is next time: 00:00:10:000

State for model input\_reader\_time\_of\_day is next time: 00:00:10:000

State for model timeComparator1 is Alarm Time: 72Time of Day: 730Output value1: 0Phase: passive

00:02:10:000

State for model input\_reader\_alarm\_time is next time: 00:00:10:000

State for model input\_reader\_time\_of\_day is next time: 00:00:10:000

State for model timeComparator1 is Alarm Time: 163Time of Day: 1623Output value1: 0Phase: passive

00:02:20:000

State for model input\_reader\_alarm\_time is next time: 00:00:10:000

State for model input\_reader\_time\_of\_day is next time: 00:00:10:000

State for model timeComparator1 is Alarm Time: 33Time of Day: 330Output value1: 0Phase: passive

00:02:30:000

State for model input\_reader\_alarm\_time is next time: inf

State for model input\_reader\_time\_of\_day is next time: inf

State for model timeComparator1 is Alarm Time: 214Time of Day: 214Output value1: 214Phase: active

00:02:30:000

State for model input\_reader\_alarm\_time is next time: inf

State for model input\_reader\_time\_of\_day is next time: inf

State for model timeComparator1 is Alarm Time: 214Time of Day: 214Output value1: 214Phase: passive

**2.6 BuzzerDriver Atomic Model:**

**“*buzzerDriver\_test\_output\_messages*”**

00:00:00:000

00:00:00:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {}] generated by model input\_reader\_time\_match

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {}] generated by model input\_reader\_alarm\_on

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {}] generated by model input\_reader\_snooze

00:00:10:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {20}] generated by model input\_reader\_time\_match

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_alarm\_on

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_snooze

00:00:20:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {5}] generated by model input\_reader\_time\_match

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_alarm\_on

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_snooze

00:00:30:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {9}] generated by model input\_reader\_time\_match

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_alarm\_on

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_snooze

00:00:40:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {12}] generated by model input\_reader\_time\_match

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_alarm\_on

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_snooze

00:00:50:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {6}] generated by model input\_reader\_time\_match

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_alarm\_on

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_snooze

00:01:50:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {9}] generated by model input\_reader\_time\_match

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_alarm\_on

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_snooze

00:02:00:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {7}] generated by model input\_reader\_time\_match

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_alarm\_on

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_snooze

00:02:10:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {16}] generated by model input\_reader\_time\_match

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_alarm\_on

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_snooze

00:02:20:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {3}] generated by model input\_reader\_time\_match

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_alarm\_on

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_snooze

00:02:30:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_time\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {20}] generated by model input\_reader\_time\_match

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_alarm\_on

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_snooze

**“*buzzerDriver\_test\_output\_state*”**

00:00:00:000

State for model input\_reader\_time\_set is next time: 00:00:00:000

State for model input\_reader\_alarm\_set is next time: 00:00:00:000

State for model input\_reader\_time\_match is next time: 00:00:00:000

State for model input\_reader\_alarm\_on is next time: 00:00:00:000

State for model input\_reader\_snooze is next time: 00:00:00:000

State for model buzzerDriver1 is Alarm Time: 0

00:00:00:000

State for model input\_reader\_time\_set is next time: 00:00:10:000

State for model input\_reader\_alarm\_set is next time: 00:00:10:000

State for model input\_reader\_time\_match is next time: 00:00:10:000

State for model input\_reader\_alarm\_on is next time: 00:00:10:000

State for model input\_reader\_snooze is next time: 00:00:10:000

State for model buzzerDriver1 is Alarm Time: 0

00:00:10:000

State for model input\_reader\_time\_set is next time: 00:00:10:000

State for model input\_reader\_alarm\_set is next time: 00:00:10:000

State for model input\_reader\_time\_match is next time: 00:00:10:000

State for model input\_reader\_alarm\_on is next time: 00:00:10:000

State for model input\_reader\_snooze is next time: 00:00:10:000

State for model buzzerDriver1 is Alarm Time: 0

00:00:20:000

State for model input\_reader\_time\_set is next time: 00:00:10:000

State for model input\_reader\_alarm\_set is next time: 00:00:10:000

State for model input\_reader\_time\_match is next time: 00:00:10:000

State for model input\_reader\_alarm\_on is next time: 00:00:10:000

State for model input\_reader\_snooze is next time: 00:00:10:000

State for model buzzerDriver1 is Alarm Time: 0

00:00:30:000

State for model input\_reader\_time\_set is next time: 00:00:10:000

State for model input\_reader\_alarm\_set is next time: 00:00:10:000

State for model input\_reader\_time\_match is next time: 00:00:10:000

State for model input\_reader\_alarm\_on is next time: 00:00:10:000

State for model input\_reader\_snooze is next time: 00:00:10:000

State for model buzzerDriver1 is Alarm Time: 9

00:00:40:000

State for model input\_reader\_time\_set is next time: 00:00:10:000

State for model input\_reader\_alarm\_set is next time: 00:00:10:000

State for model input\_reader\_time\_match is next time: 00:00:10:000

State for model input\_reader\_alarm\_on is next time: 00:00:10:000

State for model input\_reader\_snooze is next time: 00:00:10:000

State for model buzzerDriver1 is Alarm Time: 9

00:00:50:000

State for model input\_reader\_time\_set is next time: 00:01:00:000

State for model input\_reader\_alarm\_set is next time: 00:01:00:000

State for model input\_reader\_time\_match is next time: 00:01:00:000

State for model input\_reader\_alarm\_on is next time: 00:01:00:000

State for model input\_reader\_snooze is next time: 00:01:00:000

State for model buzzerDriver1 is Alarm Time: 9

00:01:50:000

State for model input\_reader\_time\_set is next time: 00:00:10:000

State for model input\_reader\_alarm\_set is next time: 00:00:10:000

State for model input\_reader\_time\_match is next time: 00:00:10:000

State for model input\_reader\_alarm\_on is next time: 00:00:10:000

State for model input\_reader\_snooze is next time: 00:00:10:000

State for model buzzerDriver1 is Alarm Time: 9

00:02:00:000

State for model input\_reader\_time\_set is next time: 00:00:10:000

State for model input\_reader\_alarm\_set is next time: 00:00:10:000

State for model input\_reader\_time\_match is next time: 00:00:10:000

State for model input\_reader\_alarm\_on is next time: 00:00:10:000

State for model input\_reader\_snooze is next time: 00:00:10:000

State for model buzzerDriver1 is Alarm Time: 9

00:02:10:000

State for model input\_reader\_time\_set is next time: 00:00:10:000

State for model input\_reader\_alarm\_set is next time: 00:00:10:000

State for model input\_reader\_time\_match is next time: 00:00:10:000

State for model input\_reader\_alarm\_on is next time: 00:00:10:000

State for model input\_reader\_snooze is next time: 00:00:10:000

State for model buzzerDriver1 is Alarm Time: 9

00:02:20:000

State for model input\_reader\_time\_set is next time: 00:00:10:000

State for model input\_reader\_alarm\_set is next time: 00:00:10:000

State for model input\_reader\_time\_match is next time: 00:00:10:000

State for model input\_reader\_alarm\_on is next time: 00:00:10:000

State for model input\_reader\_snooze is next time: 00:00:10:000

State for model buzzerDriver1 is Alarm Time: 3

00:02:30:000

State for model input\_reader\_time\_set is next time: inf

State for model input\_reader\_alarm\_set is next time: inf

State for model input\_reader\_time\_match is next time: inf

State for model input\_reader\_alarm\_on is next time: inf

State for model input\_reader\_snooze is next time: inf

State for model buzzerDriver1 is Alarm Time: 3

**2.7 DisplayDriver Atomic Model:**

**“*displayDriver\_test\_output\_messages*”**

00:00:00:000

00:00:00:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {}] generated by model input\_reader\_alarm\_time

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {}] generated by model input\_reader\_time\_of\_day

00:00:10:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {20 0 0 0 0 0}] generated by model input\_reader\_alarm\_time

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {20}] generated by model input\_reader\_time\_of\_day

00:00:20:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {5 0 0 0 0 0}] generated by model input\_reader\_alarm\_time

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {5}] generated by model input\_reader\_time\_of\_day

00:00:30:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {9 0 0 0 0 0}] generated by model input\_reader\_alarm\_time

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {9}] generated by model input\_reader\_time\_of\_day

00:00:40:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {12 0 0 0 0 0}] generated by model input\_reader\_alarm\_time

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {12}] generated by model input\_reader\_time\_of\_day

00:00:50:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {6 0 0 0 0 0}] generated by model input\_reader\_alarm\_time

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {6}] generated by model input\_reader\_time\_of\_day

00:01:50:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {8 0 0 0 0 0}] generated by model input\_reader\_alarm\_time

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {8}] generated by model input\_reader\_time\_of\_day

00:02:00:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {7 0 0 0 0 0}] generated by model input\_reader\_alarm\_time

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {7}] generated by model input\_reader\_time\_of\_day

00:02:10:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {1 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {16 0 0 0 0 0}] generated by model input\_reader\_alarm\_time

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {16}] generated by model input\_reader\_time\_of\_day

00:02:20:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {3 0 0 0 0 0}] generated by model input\_reader\_alarm\_time

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {3}] generated by model input\_reader\_time\_of\_day

00:02:30:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {0 0 0 0 0 0}] generated by model input\_reader\_alarm\_set

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {21 0 0 0 0 0}] generated by model input\_reader\_alarm\_time

[cadmium::basic\_models::pdevs::iestream\_input\_defs<int>::out: {21}] generated by model input\_reader\_time\_of\_day

**“*displayDriver\_test\_output\_state*”**

00:00:00:000

State for model input\_reader\_alarm\_set is next time: 00:00:00:000

State for model input\_reader\_alarm\_time is next time: 00:00:00:000

State for model input\_reader\_time\_of\_day is next time: 00:00:00:000

State for model displayDriver1 is current state: active alarmTime: 0 timeOfDay: 0

00:00:00:000

State for model input\_reader\_alarm\_set is next time: 00:00:10:000

State for model input\_reader\_alarm\_time is next time: 00:00:10:000

State for model input\_reader\_time\_of\_day is next time: 00:00:10:000

State for model displayDriver1 is current state: active alarmTime: 0 timeOfDay: 0

00:00:10:000

State for model input\_reader\_alarm\_set is next time: 00:00:10:000

State for model input\_reader\_alarm\_time is next time: 00:00:10:000

State for model input\_reader\_time\_of\_day is next time: 00:00:10:000

State for model displayDriver1 is current state: passive alarmTime: 20 timeOfDay: 20

00:00:20:000

State for model input\_reader\_alarm\_set is next time: 00:00:10:000

State for model input\_reader\_alarm\_time is next time: 00:00:10:000

State for model input\_reader\_time\_of\_day is next time: 00:00:10:000

State for model displayDriver1 is current state: passive alarmTime: 5 timeOfDay: 5

00:00:30:000

State for model input\_reader\_alarm\_set is next time: 00:00:10:000

State for model input\_reader\_alarm\_time is next time: 00:00:10:000

State for model input\_reader\_time\_of\_day is next time: 00:00:10:000

State for model displayDriver1 is current state: active alarmTime: 9 timeOfDay: 9

00:00:40:000

State for model input\_reader\_alarm\_set is next time: 00:00:10:000

State for model input\_reader\_alarm\_time is next time: 00:00:10:000

State for model input\_reader\_time\_of\_day is next time: 00:00:10:000

State for model displayDriver1 is current state: passive alarmTime: 12 timeOfDay: 12

00:00:50:000

State for model input\_reader\_alarm\_set is next time: 00:01:00:000

State for model input\_reader\_alarm\_time is next time: 00:01:00:000

State for model input\_reader\_time\_of\_day is next time: 00:01:00:000

State for model displayDriver1 is current state: passive alarmTime: 6 timeOfDay: 6

00:01:50:000

State for model input\_reader\_alarm\_set is next time: 00:00:10:000

State for model input\_reader\_alarm\_time is next time: 00:00:10:000

State for model input\_reader\_time\_of\_day is next time: 00:00:10:000

State for model displayDriver1 is current state: active alarmTime: 8 timeOfDay: 8

00:02:00:000

State for model input\_reader\_alarm\_set is next time: 00:00:10:000

State for model input\_reader\_alarm\_time is next time: 00:00:10:000

State for model input\_reader\_time\_of\_day is next time: 00:00:10:000

State for model displayDriver1 is current state: active alarmTime: 7 timeOfDay: 7

00:02:10:000

State for model input\_reader\_alarm\_set is next time: 00:00:10:000

State for model input\_reader\_alarm\_time is next time: 00:00:10:000

State for model input\_reader\_time\_of\_day is next time: 00:00:10:000

State for model displayDriver1 is current state: passive alarmTime: 16 timeOfDay: 16

00:02:20:000

State for model input\_reader\_alarm\_set is next time: 00:00:10:000

State for model input\_reader\_alarm\_time is next time: 00:00:10:000

State for model input\_reader\_time\_of\_day is next time: 00:00:10:000

State for model displayDriver1 is current state: active alarmTime: 3 timeOfDay: 3

00:02:30:000

State for model input\_reader\_alarm\_set is next time: inf

State for model input\_reader\_alarm\_time is next time: inf

State for model input\_reader\_time\_of\_day is next time: inf

State for model displayDriver1 is current state: active alarmTime: 21 timeOfDay: 21

**TOP Model Execution status:**

***“ALARM\_CLOCK\_output\_messages”***

00:00:00:000

00:00:00:000

[cadmium::basic\_models::pdevs::iestream\_input\_defs<Message\_t>::out: {}] generated by model input\_reader

[TimeAdder\_defs::time\_of\_day: {0}] generated by model timeAdder1

[TimeComp\_defs::time\_match: {0}] generated by model timeComparator1

00:00:00:000

[TimeComp\_defs::time\_match: {0}] generated by model timeComparator1

***“ALARM\_CLOCK\_output\_state”***

00:00:00:000

State for model input\_reader is next time: 00:00:00:000

State for model minRegister1 is minute: 12336 wrap: 0 active: 0

State for model hourRegister1 is Hours Registered: 10

State for model timeAdder1 is outTime: 0Phase:

State for model alarmRegister1 is Alarm Time: 0

State for model timeComparator1 is Alarm Time: 0Time of Day: 0Output value1: 0Phase:

State for model buzzerDriver1 is Alarm Time: 0

State for model displayDriver1 is current state: active alarmTime: 0 timeOfDay: 0

00:00:00:000

State for model input\_reader is next time: inf

State for model minRegister1 is minute: 12336 wrap: 0 active: 0

State for model hourRegister1 is Hours Registered: 10

State for model timeAdder1 is outTime: 0Phase: passive

State for model alarmRegister1 is Alarm Time: 0

State for model timeComparator1 is Alarm Time: 0Time of Day: 0Output value1: 0Phase: active

State for model buzzerDriver1 is Alarm Time: 0

State for model displayDriver1 is current state: active alarmTime: 0 timeOfDay: 0

00:00:00:000

State for model input\_reader is next time: inf

State for model minRegister1 is minute: 12336 wrap: 0 active: 0

State for model hourRegister1 is Hours Registered: 10

State for model timeAdder1 is outTime: 0Phase: passive

State for model alarmRegister1 is Alarm Time: 0

State for model timeComparator1 is Alarm Time: 0Time of Day: 0Output value1: 0Phase: passive

State for model buzzerDriver1 is Alarm Time: 0

State for model displayDriver1 is current state: active alarmTime: 0 timeOfDay: 0